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Scoping Study and Greater than
Class C Waste Public Meeting

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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VERY LOW-LEVEL RADIOACTIVE WASTE SCOPING STUDY AND
GREATER THAN CLASS C WASTE PUBLIC MEETING

+ + + + +

THURSDAY

FEBRUARY 22, 2018

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ROCKVILLE, MARYLAND

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The Meeting convened at the Nuclear
Regulatory Commission, Two White Flint North
Auditorium, 11545 Rockville Pike, at 9:00 a.m., Daniel
Mussatti, Facilitator, presiding.

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NRC STAFF PRESENT:

DAN MUSSATTI, NRO, Facilitator

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MAURICE HEATH, NMSS

KELLEE JAMERSON, NMSS

TIM McCARTIN, NMSS

CHRIS McKENNEY, NMSS

CARDELIA MAUPIN, NMSS

JOHN TAPPERT, NMSS

GREGORY SUBER, NMSS

HARRY FELSHER, NMSS

SARAH ACHTEN, NMSS

JANELLE JESSIE, NMSS

HAIYONG JUNG

HANS ARLT, NMSS

DAVID ESH, NMSS

IAN IRVIN, OGC

BOBY EID, NMSS

MICHELLE SAMPSON, NMSS

MARIA ARRIBAS-COLON, NMSS

PRIYA YADAV, NMSS*

ADAM SCHWARTZMAN, NMSS*

ANGEL MORENO*

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CYNTHIA BARR, NMSS*

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NRC STAFF PRESENT (CONTINUED) :

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GARY PURDY, NSIR*

GARY COMFORT, NMSS*

KATHY MODES*

MELANIE WONG, NMSS*

ALSO PRESENT:

AMANDA SPALDING*

AMBER IGOE*

AMEESHA MEHTA-SAMPATH*

ANDREW PARK*

ANDY ZACH*

BEN WISHERT*

BETSY FORINASH*

BETSY RIVARD*

BOB SKOWRONEK*

BOBBY SMITH*

BRAD BROUSSARD*

BRET LESLIE*

BRYAN BAKER*

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DARRELL LILES*

DAVID MARTIN*

DAVID HASTINGS*

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ALSO PRESENT (CONTINUED) :

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DAVID KANIA*

DAVID PICKETT*

DAVOOD ABOUDARDA*

DAWN CINQUINO*

DENNIS MEIER*

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KAY CUMBOW, Citizens for Alternatives to Chemical
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DAVID HAUGHT

*Present via teleconference

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P R O C E E D I N G S

9:06 a.m.

MR. MUSSATTI: Good morning.

As you can possibly see on that screen up there, we have 38 attendees that are online with us in the webinar. We'll have a handful more that are on our telephone call line and we've got everybody here in the room, and those of us that are still coming that are probably stuck on the Metro.

My name is Dan Mussatti. I am with the NRC's Facilitator Corps.

I want to welcome you to this public meeting for two important topics, the very low-level radioactive waste and the draft technical analysis for the greater than Class C waste. Those have been prepared by the Office of the Nuclear Material Safety and Safeguards, NMSS.

And my role is to help ensure that this meeting is on time, that it's informative for the NRC to be able to understand what the issues are that come from the public, and to just sort of make sure that all of the cats are herded in one direction and traveling in unison.

With regards to getting around the building, as long as you have your ID badge, your guest

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1 badge visible, you have full access to this auditorium,
2 the foyer out in front of it, the next floor up, and
3 the entire main floor from where you checked in this
4 morning all the way down to the cafeteria. So, there
5 seems to be a change in the policy here and we don't
6 need to be providing adult supervision to get you to
7 the cafeteria or to the coffee shop, and those sorts
8 of things. You've got a little bit more freedom.

9 If you leave the building by the revolving
10 door in the back, you're welcome to do that. But if
11 you do that, you have to go out by the guard shack where
12 the cars come in, all the way around to the front of
13 the building, and enter again and go through security
14 one more time. They don't have enough people here to
15 be able to handle letting people back in through the
16 back-end and doing the screening and everything for
17 it. But you do have the ability to exit from there
18 if you need to.

19 To get to the restrooms, that's very easy,
20 out through these doors, straight across the foyer to
21 the far side. The ladies room is on the left; the men's
22 room is on the right.

23 If we are asked to evacuate this building,
24 please follow the instructions of the folks that are

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1 up here with NRC and with our security staff that's
2 outside. We will exit through the revolving door right
3 back on the next level up and we will gather over by
4 the guard station over there where the cars come in.

5 And when you get there, please don't wander away
6 because we're going to want to take a head count to
7 make sure that everybody got out safely. Which reminds
8 me, we need to make sure that you get signed up on the
9 sign-in sheets here because that's the only way we know
10 that you are here and we didn't leave your head in the
11 building when we evacuated.

12 So, take a moment at the break, whether
13 you're NRC or a guest coming into the building, to sign
14 that list for us. It's kind of a safety thing, and
15 that's what we're all about around here.

16 Today's meeting is a Category 2 meeting,
17 which means it's held with "a group of industry
18 representatives, licensees, vendors, and
19 nongovernmental organizations, and we use a facilitator
20 to ensure that issues and concerns are presented,
21 understood, and considered by the NRC." That's a direct
22 quote.

23 We have provided an agenda for you and
24 invite your comments and questions at the designated

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1 points in the meeting. This is not a free discussion
2 back and forth. We have specific periods of time when
3 these comments are being collected.

4 For people in the room, we ask that you
5 please turn off anything that buzzes, rings, speaks
6 to you, or anything like that, all of those devices,
7 so that we have as minimal a distraction as possible.

8 This gentleman over here is trying to transcribe this
9 meeting for us, and those sorts of things are a
10 distraction, and, also, for people that are speaking
11 in the room.

12 There are many of us that have jobs that
13 require us to have our phones on all the time. Some
14 of us are emergency response here with NRC. Some of
15 us are just really important people in the real world.

16 And if you have to take a phone call, I ask that you
17 just head out to the foyer before you actually start
18 the conversation, so you minimize the disruption in
19 the room.

20 We have a court reporter. That's Charles.

21 He's going to be transcribing this meeting. To ensure
22 we get a clean transcript, we need to have only one
23 speaker at a time, no interruptions, these sorts of
24 things. Please do not be rude. If you need to have

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1 a sidebar conversation in the room, resist as much as
2 you can, but if you have to have a sidebar conversation
3 on something that's technical that's related here that
4 you may have a question later on or something else
5 that's important, could you please take it to the
6 outside the foyer there? And remember that we can still
7 hear you, so use your inside voice when you're out there.

8 One last thing about the transcript.
9 Sometimes what you say isn't what you think you're
10 saying, and sometimes what we hear isn't what you wanted
11 us to hear. It would be a good idea, if you make a
12 comment on the microphones here that you follow that
13 up by sending us an email that has your comment written
14 down. That way, you can craft that language a little
15 bit better to make sure that you have got it exactly
16 the way that you want it, and we'll have less chance
17 of miscommunication.

18 This meeting is being webcast, and we'll
19 have the presentations posted on the website
20 afterwards. If you're participating by the internet,
21 we strongly urge you to not use the speaker and the
22 microphone on your computer to communicate with us.
23 We ask that, instead, what you do is you call into the
24 bridgeline number that we have and use the telephone.

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1 The bandwidth issues that we get when we're trying
2 to use GoToMeeting or one of these other webinar
3 communication techniques, that bandwidth problem can
4 be a little bit tricky when we're trying to send images
5 and at the same time we're trying to gather or send
6 audio.

7 So, the phone number, if you are on your
8 computer and need to switch over to the telephone, the
9 phone number is 1-800-857-9840 and the passcode is
10 4975456. I'm going to repeat that again in case I
11 caught somebody by surprise and they didn't have a
12 pencil. 1-800-857-9840, and the passcode, 4975456.
13 Okay. If you folks on the phone didn't get that, please
14 raise your hand. All right.

15 Also, to ensure that we have a clean
16 transcript, when you make your comments by telephone,
17 not through the webinar, speak slowly and clearly, and
18 if your last name is something that is a little bit
19 hard to guess the spelling on, you might provide us
20 with the spelling of your last name as well. For the
21 record, my last name is spelled M-U-S-S-A-T-T-I.

22 We have an operator on the line that is
23 going to help us with the telephone people that want
24 to call in. Would you like to explain to us how to

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1 do that now?

2 OPERATOR: Yes. If you would like to ask
3 a question during today's presentation, you may press
4 *1. Please unmute your phone and record your first
5 and last name clearly when prompted. To withdraw your
6 question at any time, please press *2. Once again,
7 to ask a question during today's presentation, you may
8 press *1.

9 MR. MUSSATTI: Thank you very much.

10 Okay. We want this meeting to be casual,
11 open, and comfortable. We don't want to go to Robert's
12 Rules of Order so that we can maintain order. And that
13 means we have to have a couple little basic rules just
14 to make sure that we get things right and we don't wind
15 up with things getting out of hand too much.

16 When we get to the question-and-answer
17 section, a lot of times somebody is going to ask a
18 question, and when they get the answer, that's going
19 to compel a follow-up question. That's not a bad thing.

20 When the follow-up question is answered and it compels
21 a second follow-up question, or a third follow-up
22 question, it stops being a question-and-answer and
23 starts turning into a conversation. We don't have time
24 for that today. We've only got five hours, and for

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1 the question-and-answer section of this thing, we've
2 got nine questions that we specifically want to ask
3 and have answers for, and we're going to have to roll
4 through those as fast as we can and just get the high
5 points of what everybody's concerns are.

6 So, what we would like to have you do is
7 think about your question ahead of time, ask it quickly
8 and concisely. You're welcome to have a follow-up if
9 you really need that. But let's try to avoid that
10 conversation thing where I have to play bad cop. And
11 if you have further questions, you can always tackle
12 one of these guys out in the hallway and ask them later
13 on. You can communicate with them by email, anything
14 like that, but we want to make sure that we get as many
15 questions out as possible from as wide a group of people
16 as possible.

17 For the NRC staff that are attending in
18 this room, the people that are our guests have come
19 here from a long ways away. They've changed their
20 schedule. They've had to travel to get here. We just
21 walk down from our offices and we can do that anytime
22 we want to, so we really don't need to be asking
23 questions necessarily because we can catch you in the
24 cafeteria or we can go to your office, these sorts of

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1 things.

2 If you have a question that you think is
3 important, could you please hold off until you see there
4 is a lull in the questioning and we're kind of reaching
5 the end of everybody else asking a question before you
6 start asking a question? That way, we've maximized
7 the ability of the people that have come to visit us
8 having an opportunity to participate in the meeting.

9 I need to point out that we need to be
10 careful not to discuss any proprietary information
11 here. And although we intend to have an open dialogue,
12 please take note that we will not discuss any ongoing
13 reviews, and neither industry nor the NRC will make
14 any regulatory commitments during this conference.

15 To that end, I would also like to point
16 out that all of these microphones used to be standing
17 straight up in the air. That's because they're always
18 hot. These are always hot as well, which means, if
19 you're talking with somebody on a technical issue that
20 could be confidential, industry-sensitive, these sorts
21 of things, if you're standing by a microphone, everyone
22 is going to hear it. And that's not as fun as when
23 Joe Biden used to do that sort of stuff. Some of that
24 could be kind of critical. So, please remember that

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1 these are hot microphones at all times and stay away
2 from them as far as possible if you're going to have
3 a discussion, so that everybody else doesn't hear your
4 grocery list, or whatever it is that you're talking
5 about.

6 As you can see from the agenda, we've got
7 a lot of stuff to cover today and a short time to do
8 it. And I've taken up a lot of time already. So, I
9 want to get started.

10 Today we have with us John Tappert,
11 Director of the Division of Decommissioning, Uranium
12 Recovery, and Waste Programs, and he's going to make
13 a few opening comments and get this ball rolling.

14 John?

15 MR. TAPPERT: Good morning and welcome.
16 I want to thank people for coming to this meeting and
17 dialing in on the phone.

18 The purpose of this morning's meeting is
19 to really get feedback from you. So, I'll be brief.

20 Kellee is going to give a short presentation to tee-up
21 the topic, but I just want to make a couple of quick
22 points before she does that.

23 First of all, the NRC currently has a
24 regulatory framework for low-level waste that

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1 accommodates the disposal of waste streams with very
2 low levels of radioactivity, which is fully protective
3 of public health and safety.

4 So, kind of as a first principle, we have
5 an effective system today and don't necessarily feel
6 the need to change that. However, the NRC seeks to
7 be a learning organization, and if there is a better
8 way to build a mousetrap and if people have ideas about
9 how we can strengthen and enhance and improve our
10 efficiency and effectiveness in a regulatory framework,
11 that's what we really want to hear. So, we really want
12 to hear from the stakeholders where they see are
13 opportunities for us to do better in the future.

14 We have a number of questions that we've
15 asked. That's to kind of spur or seed the conversation,
16 but it is not an indication that the staff has any
17 specific proposals or agenda at this time. Really,
18 we're seeking input from you to help us think about
19 this issue to determine if any changes might be
20 appropriate in the future. And if those changes are
21 appropriate, then that will go through a very deliberate
22 process with further stakeholder engagement and with
23 the Commission as well.

24 So, we're looking to those informed

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1 stakeholders, the kind of stakeholders who come to
2 public meetings on low-level waste and read and respond
3 to Federal Register notices. So, I'm very much looking
4 forward to the conversation this morning.

5 And I guess the second point I'd make is
6 that we're talking about disposal in our regulatory
7 context, which means -- I'm paraphrasing -- but it's,
8 essentially isolation from the human biosphere in a
9 land disposal facility. And while we certainly want
10 your ideas, and I often say there's no bad ideas, if
11 the idea does not involve isolation from the human
12 biosphere in a land disposal facility, it would be out
13 of scope of today's discussion. So, just keep that
14 in mind as we're going through this.

15 So, that's really all I wanted to say to
16 kick this off. I look forward to the conversation and
17 your active participation as we go through this.

18 And with that, I would like to turn it over
19 to Kellee.

20 MS. JAMERSON: Good morning.

21 My name is Kellee Jamerson, and I'm a
22 Project Manager in the Low-Level Waste Branch in the
23 Division of Decommissioning, Uranium Recovery, and
24 Waste Programs.

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1 Next slide, please.

2 So, as you can see from this figure, the
3 NRC's Low-Level Waste Program continues to be very
4 active. Our focus for this presentation today is very
5 low-level waste, and greater than Class C and
6 transuranic waste will be discussed this afternoon.

7 To provide a little background, in 2007,
8 due to developments in the National Program for
9 Low-Level Radioactive Waste Disposal and changes in
10 the regulatory environment, the NRC conducted a
11 strategic assessment of the Low-Level Radioactive Waste
12 Program. Of the 20 tasks identified in the assessment,
13 three of those were related to low-activity waste which
14 is now termed very low-level waste.

15 Those three tasks were to coordinate with
16 other agencies on consistency in regulating
17 low-activity waste disposal, develop guidance that
18 summarizes disposition options for low-end materials
19 and waste, and to promulgate a rule for disposal of
20 low-activity waste.

21 Given the constantly evolving nature of
22 low-level waste issues, a programmatic assessment was
23 conducted in 2016. One task identified as a medium
24 priority was to perform a Very Low-Level Waste Scoping

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1 Study. This task combined the three tasks above from
2 the 2007 Strategic Assessment.

3 The other task from the programmatic
4 assessment which was deemed a high priority was to
5 finalize the guidance for 10 CFR Section 20.2002,
6 Method for Obtaining Approval of Proposed Disposal
7 Procedures. Revisions to this guidance document are
8 currently in process.

9 Currently, very low-level waste can be
10 disposed under the provisions of 10 CFR 20.2002. With
11 more decommissioning waste anticipated, the volume of
12 very low-level waste is also expected to increase.

13 Next slide.

14 So, why perform a Very Low-Level Waste
15 Scoping Study now? Although originally listed as a
16 medium priority in the programmatic assessment, the
17 Very Low-Level Waste Scoping Study has increased in
18 priority. Changes in the timing of nuclear power plant
19 decommissioning has elevated the importance of
20 evaluating more risk-informed and performance-based
21 approaches for the management of very low-level waste.

22 The staff also recognizes the potential
23 opportunity to improve regulatory efficiency and
24 effectiveness by considering other options for very

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1 low-level waste disposal that might create less of a
2 regulatory burden on licensees.

3 Lastly, there is an opportunity to explore
4 closer alignment with the International Atomic Energy
5 Agency standards and other international practices.

6 The purpose of the Very Low-Level Waste
7 Scoping Study is to identify possible options to improve
8 and strengthen the NRC's regulatory framework for the
9 disposal of very low-level waste, including the
10 potentially large volumes of very low-level waste
11 associated with a radiological event, such as the use
12 of a radiological dispersal device.

13 Secondly, and to reiterate the previous
14 slide, the Very Low-Level Waste Scoping Study will
15 evaluate more risk-informed and performance-based
16 approaches for the management of very low-level waste.

17 The Very Low-Level Waste Scoping Study will
18 consider disposal of waste, as defined by 10 CFR Part
19 61. As such, the Scoping Study will not address
20 non-disposal-related disposition pathways, including
21 unrestricted release, clearance, reuse, or recycle of
22 materials.

23 In addition, the NRC intends to evaluate
24 regulatory options that would define the conditions

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1 under which very low-level waste, including mixed
2 waste, could be disposed of in Resource Conservation
3 and Recovery Act hazardous waste facilities.

4 In initiating the Very Low-Level Waste
5 Scoping Study, the NRC staff has considered lessons
6 learned and available information from a variety of
7 sources, some of which are shown here. Staff will
8 consider the efforts of other entities and government
9 agencies, such as the Environmental Protection Agency's
10 2013 Advance Notice of Proposed Rulemaking and studies
11 conducted by the National Academy of Sciences and the
12 Electric Power Research Institute. Additionally,
13 staff will consider learnings from other countries with
14 respect to very low-level waste disposal as a benchmark
15 and other factors to inform the NRC staff's
16 recommendation to the Commission for addressing very
17 low-level waste. In light of this, the staff has
18 developed questions, which you will see momentarily,
19 where we desire additional input from our stakeholders.

20 At the conclusion of the Very Low-Level
21 Waste Scoping Study, results of the staff's assessment
22 as well as staff recommendations will be presented to
23 the Commission in a SECY paper. Potential results of
24 the Very Low-Level Waste Scoping Study include:

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1 promulgating a rule that would define the conditions
2 under which very low-level waste could be disposed;
3 developing guidance that summarizes disposition
4 options for low-end materials and waste; the need for
5 additional coordination with other federal agencies
6 regarding very low-level waste disposal; the need for
7 further analysis; or no action. I would add that there
8 may be other possible outcomes and we welcome your
9 feedback on other potential results.

10 The NRC staff published in The Federal
11 Register on February 14th, 2018, a Notice of the Very
12 Low-Level Waste Scoping Study and Request for Comment.

13 During the Very Low-Level Waste Scoping Study, the
14 NRC staff wants to hear from stakeholders to understand
15 their concerns and to gain their input and perspectives
16 on very low-level waste.

17 Within The Federal Register notice, the
18 NRC staff requested comment on a number of questions,
19 which we will go through at this time. We will go
20 through each question on the following slides.

21 Now I will turn it over to Mr. Mussatti.

22 MR. MUSSATTI: Okay. Thank you.

23 There are nine questions that were posed
24 in The Federal Register notice, and we would like to

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1 go through them one at a time now and take no more than
2 about 15 minutes apiece for them. I'm not going to
3 time this, but if we can be sensitive to that, let's
4 try to see how fast we can get through these.

5 Here's the first question: "The United
6 States does not have a formal regulatory definition
7 for very low-level waste. What should the NRC consider
8 in developing its own regulatory definition? Is there
9 another definition for very low-level waste that should
10 be considered? Provide a basis for your response."

11 I'm open to comments from the floor.

12 Okay. Thank you. Please state your name
13 first.

14 MS. D'ARRIGO: Diane D'Arrigo, Nuclear
15 Information Resource Service.

16 No, you should not make this category.

17 MR. MUSSATTI: Okay. That was short.

18 Is there anybody else in the room?

19 (No response.)

20 Mr. Operator? I've forgotten your name
21 already. I'm sorry.

22 OPERATOR: Not a problem. It's Brandon.

23 MR. MUSSATTI: Okay. Do we have anybody
24 on the line?

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1 OPERATOR: I'm currently showing no
2 questions or comments at this time.

3 I would like to remind participants on the
4 phone that you may press *1 to ask a question or leave
5 a comment.

6 MR. MUSSATTI: Okay. We also have no
7 questions on the webinar, but we do have somebody
8 standing by a microphone.

9 Yes, sir?

10 MR. MAGETTE: Hi. My name is Tom Magette.
11 I'm with Talisman International.

12 I would suggest that you should have a
13 category for very low-level waste today, because of
14 some of the things that Kellee mentioned, in particular,
15 the disposal under 20.2002. Essentially, we have a
16 de facto category, and it would be much more rigorous,
17 I believe, to have a formal category. I think it would
18 also be more risk-informed.

19 There are multiple ways that you could do
20 it. One might be to set a percentage of the
21 radioisotope limitations given in the tables in 61.55.

22 Just, for example, 10 percent, not suggesting that
23 that would be the right percentage, but that would be
24 a way to formalize a definition.

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1 Another way would be to use something
2 analogous to what's going on in the proposed rulemaking
3 right now for Part 61, whereby you would prepare a
4 performance assessment and back-calculate waste
5 acceptance criteria, which would, then, have the effect
6 of a regulation for that site, to a different standard,
7 a much lower-dose standard, obviously, than the 25
8 millirem; maybe 5 millirem. But, here again, not so
9 much proposing a standard here, as just suggesting a
10 way to get there.

11 But I think, also, for the reasons that
12 Kellee mentioned, you need one because of the large
13 volumes of waste that are going to come out of these
14 decommissioning sites. It's been suggested that
15 20.2002 is an adequate way to manage that. I don't
16 think that's the case. While that has been used to
17 manage some of these large-volume disposals, there's
18 also just an inherent disincentive in the notion that
19 I have to file a case-by-case application. You have
20 to treat each one of these as an individual licensing
21 act, so to speak, if it's going to go to a site.

22 So, preparing a PA, these things have taken
23 years in some cases to do. So, that's not really an
24 efficient way to think about moving a million cubic

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1 feet of lightly contaminated soil or rubblized
2 concrete. So, it doesn't really provide a valid
3 alternative, in my view, for disposing of these large
4 quantities of waste.

5 I think there's a lot of reasons that you
6 do want a standard. It would be defensible from a
7 public health and safety perspective. It would be
8 manageable from an industry perspective.

9 Thank you.

10 MR. MUSSATTI: Does anyone at the table
11 wish to ask for clarification, comment, rebut?

12 (No response.)

13 Okay. Anybody else in the room?

14 There. Thank you.

15 MS. D'ARRIGO: Diane D'Arrigo, Nuclear
16 Information Resource Service.

17 The definition that you've got for what
18 you're going to do with very low-level waste, if you
19 were to make such a category as to isolate it from the
20 human environment or from the food chain of man, in
21 order to isolate it, putting it into regular landfills
22 and industrial landfills, most of which have or will
23 leak, is not isolating it.

24 So, what our organization and what

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1 organizations that have opposed below-regulatory
2 concern over the decades have called for is the
3 continued isolation of the radioactivity from nuclear
4 power. Nuclear power generated this waste. Yes, it
5 is a very large volume, but it's also including very
6 long-lived radioactivity. There's not a safe level.

7 I mean, I know that some people want to advocate
8 hormesis. But, until that becomes the law of the land,
9 we need to try to prevent exposures, rather than
10 disperse the radioactivity.

11 Also, I would point out -- it might come
12 up in a later question -- that women are 50 percent
13 more likely to get cancer from the same dose as men,
14 according to the BIER VII risk numbers. And so,
15 protecting for a man's environment is not protecting
16 women or youth, other parts of our fuel chain. I know
17 that's 10 CFR 20, but that needs to be considered when
18 we're talking about massive, routine generic release
19 of radioactivity from the nuclear power complex.

20 MR. MUSSATTI: Thank you very much.

21 I believe we've got a question online?
22 Why, yes, I would like you to read it.

23 MS. ACHTEN: "EPRI has published two
24 public reports investigating very low-level waste as

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1 a separate waste category, how the concept is already
2 practiced in the U.S. and how it is applied in other
3 countries. It also provides a generic technical
4 approach on how it might be defined." This is from
5 Lisa Edwards.

6 MR. MUSSATTI: Okay. Thank you. Thank
7 you.

8 All right. Let me check with the
9 telephones one more time, and if not, I think we're
10 going to move on to the next question.

11 OPERATOR: Yes, we do have a question on
12 the phone line from Marvin Lewis.

13 Your line is open.

14 MR. LEWIS: Thank you.

15 Look, I don't know if I'm coming in at the
16 right time or I'm coming in a little late. A little
17 problem with muting the phone. Anyway, I appreciate
18 the chance to approach this subject.

19 Now we're asking about, yes, you were
20 asking about how you define this stuff. And I agree.

21 I sure had a problem reading your definitions. But,
22 then, again, I happen to be a very good reader, according
23 to the testing.

24 And I don't really like the idea that, when

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1 you're defining very low-level waste, you're really
2 taking the volume and the total out of the equation.

3 We have waste all through the nuclear fuel cycle that's
4 completely ignored or just eliminated from calculation.

5 For instance, we have like 30,000 uranium mines in
6 Australia, over 10,000 in Canada, probably just as many
7 in the United States.

8 And when we look at radioactivity going
9 into the biome, the air, the water, the foods, the soil,
10 it just doesn't register. It doesn't register on
11 anybody. It doesn't register on you. It doesn't
12 register on me. Well, it does register on our organs.

13 And I want to point out that, since the
14 1940s, when the background was measured at 40 millirems
15 per year, now the NRC, Department of Energy, EPA,
16 alphabet soup, is calling out the background radiation
17 at 360 millirems per year now.

18 MR. MUSSATTI: Sir? Sir?

19 MR. LEWIS: Yes?

20 MR. MUSSATTI: We're starting to wander
21 a little bit off-topic here. We don't have a great
22 deal of time. I don't know how long it took you to
23 get on the phone line, but we've stressed that there's
24 a lot to cover in a short amount of time. Can you

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1 summarize --

2 MR. LEWIS: And that's what I'm afraid of.

3 Your right to coverage is not my right to cover. My
4 right to cover is what's going on out here. And you,
5 sir, aren't interested in it.

6 MR. MUSSATTI: Thank you.

7 MR. LEWIS: Now if you want to stop this
8 comment --

9 MR. MUSSATTI: Mr. Operator, could you
10 turn that microphone off, please?

11 MR. LEWIS: Thank you.

12 MR. MUSSATTI: All right. I'm sorry about
13 that.

14 We had one comment from up on the panel?

15 MR. HEATH: Yes. Thank you. This is
16 Maurice Heath from NRC, for those on the phone.

17 Going back to the comment, I believe, from
18 Lisa Edwards, and the question, we are aware of that
19 EPRI publication. We have reviewed it. And the
20 purpose of this meeting is also to get other
21 publications that have been put out public or some
22 organizations have done, because we're trying to gather
23 comments. So, we appreciate that report, and we would
24 like to have other reports or documents that have been

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1 involved with very low-level waste. And we would take
2 that into consideration when we're going through the
3 Scoping Study.

4 MR. MUSSATTI: Okay. I believe that's
5 pretty thorough.

6 Is this very brief?

7 MS. D'ARRIGO: Yes. Are the EPRI
8 documents public?

9 MR. MUSSATTI: Okay. The EPRI documents
10 should be public. Most of them are.

11 MS. D'ARRIGO: No, actually, a lot of them
12 are not.

13 MR. MUSSATTI: Oh, yes, I did misspeak
14 right there, but that one there I do believe is.

15 MS. D'ARRIGO: Okay. So, if those could
16 be provided to the public, if that's part of your
17 consideration? And we'll also provide documents about
18 why we don't want this to happen.

19 MR. MUSSATTI: Okay. Thank you.

20 Let's move on to the next question.

21 "The EPRI has published two public reports
22 investigating very low-level waste as a separate waste
23 category, how this concept is already practiced in the
24 U.S. and" -- okay, yes, the EPRI reports are public,

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1 from Lisa.

2 Okay. Question No. 2: "The existing
3 regulatory framework within 10 CFR 61.55 divides
4 low-level radioactive waste into four categories,
5 Classes A, B, C, and greater than Class C. Should the
6 NRC revise the waste classification system to establish
7 a new category for very low-level waste? What criteria
8 should NRC consider in establishing the boundary
9 between A and very low-level waste?"

10 Anybody in the room?

11 (No response.)

12 Anybody on the telephone that doesn't want
13 to holler at me?

14 OPERATOR: Yes. Larry Camper, your line
15 is open.

16 MR. CAMPER: Very good. Can you hear me?

17 MR. MUSSATTI: Yes, sir.

18 MR. CAMPER: Very good. Thank you.

19 I had a quick comment on the previous
20 question. Somehow I couldn't get on.

21 But the fundamental answer to your first
22 question is risk. The classification should be driven
23 by risk.

24 In terms of other sources, you have the

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1 EPA low-activity waste activities several years ago.

2 You have the IAEA criteria. You have what's taken
3 place in the State of Texas which addresses exemption
4 for disposal of low-level waste at approximately the
5 lowest 10 percent of Class A. And you have the agency
6 experience with 20.2002. So, there are a number of
7 things to draw upon.

8 With regards to the question of "should
9 you establish a category for various low-level waste",
10 my personal view is, yes, you should. I believe it
11 would be more clear if you did that. It would eliminate
12 the need for exemptions, which is the current process.

13 And I think by establishing a regulatory criteria via
14 rulemaking would subject it to the awareness of the
15 public that is warranted. Comments could be gathered
16 and the like.

17 In terms of establishing the boundary
18 between Class A and VLLW, currently, of course, there
19 is no lower threshold for Class A waste. If you're
20 going to establish a category of VLLW, then there would
21 need to be a clear line of demarcation. In the final
22 analysis, that will be a policy matter. It will have
23 to be selected. In the case of the disposal of the
24 waste in Texas, for example, approximately 10 percent

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1 of the low in a Class A waste was chosen as that
2 benchmark. It's a good benchmark. It's not the only
3 benchmark, but it's certainly well worth consideration.

4 The work that's been done by EPRI in terms of its risk
5 analysis for the very low end of Class A waste is a
6 useful resource as well.

7 But, yes, there would need to be a clear
8 line of demarcation between Class A waste and very
9 low-level waste if you proceed with the rulemaking.

10 Thank you.

11 MR. MUSSATTI: Thank you, Mr. Camper.

12 Could we have No. 2 up on the screen again?

13 Is there anybody else who has a comment
14 on Question No. 2?

15 MS. D'ARRIGO: It's Diane D'Arrigo.

16 I'd like to know what you think it would
17 cost to enforce a new category. If you're going to
18 bother to verify the distinction at a lower level, at
19 this point -- okay, if you're going to bother to make
20 a distinction at a lower level, how is that going to
21 be enforced?

22 A concern that we had with the whole
23 below-regulatory concern policies was that it was based
24 on dose, and there's no way to verify dose. Any amount

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1 of radioactivity could be calculated to be a dose.
2 How are you going to prevent dilution from Class A down
3 to this VLLRW class? It's, I think, going to cost more
4 than it's going to provide value, at least from the
5 public perspective. And we would like to be protected,
6 not have people who don't think that low doses are
7 harmful decide that the risk is so low that we can be
8 exposed. We oppose that.

9 MR. HEATH: Yes, Diane, you make a good
10 point. We do have a question, actually, coming up to
11 deal with cost. That's something that we're trying
12 to get more information or experience from folks, from
13 our stakeholders, if they've seen that.

14 One distinction for very low-level waste
15 is we are talking about disposal. And we want to get
16 ideas to figure out, if we decide to or if the result
17 is that it comes up that we need to make a separate
18 category, we would do a cost analysis as part of that,
19 if we go a rulemaking route. That's if we go that route.

20 But we're just trying, right now, to just
21 gather the information to understand just from our
22 stakeholders the issues, and we have a question later
23 on to talk about cost.

24 MS. D'ARRIGO: Well, when the

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1 below-regulatory concern policies were under
2 consideration, we looked at verifying. And as the
3 Department of Energy moves to clear radioactive
4 materials from its site, it's extremely expensive and
5 difficult to actually detect at those levels. It
6 doesn't mean there's no harm, just because the detectors
7 aren't able to detect. It takes a really long time
8 to scan. I mean, when we looked at how the Department
9 of Energy was supposedly clearing its materials, they
10 had to scan items very, very slowly. So, I mean,
11 procedurally, what's obviously going to happen is that
12 a whole category of decommissioning waste is just going
13 to be treated as rubble and garbage, and the assumptions
14 are going to be made, based on whatever assumptions.

15 And the reality is that there's not going to be
16 verification.

17 And also, as I mentioned before, landfill
18 disposal/incineration is not isolating the waste.
19 Landfills, the majority of landfills do leak.
20 Mixed-waste landfills have hazardous wastes. So,
21 you've got synergistic effects. What kind of effects
22 are going to happen if these materials are put into
23 hazardous or regular leaking landfills? Incinerators
24 disperse radioactivity.

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1 I'll stop, since you look like you want
2 to move on.

3 MR. HEATH: Diane -- oh, I'm sorry -- but
4 one thing to point out, I would appreciate it if you
5 would actually submit that and any reports that you
6 have. Just submit those to the comments section that
7 Dan will lay out later. If we could get those, we will
8 consider every comment and every report.

9 MS. D'ARRIGO: And you've received that
10 comment over and over and over for the last 32 years,
11 but I will be glad to do it again. And we will do it
12 again, and we will get more people to do it again.

13 MR. MUSSATTI: All right. Do we have
14 another comment on the floor here?

15 MR. VICKERS: Yes, Glen Vickers, nuclear
16 power generation.

17 So, the current Class A, B, and C limits
18 are concentration-based limits and they're easy for
19 licensees, regulators, and the public to measure and
20 understand. As was previously noted, some of the
21 10 CFR 20.2002, applications can become complicated
22 as they involve environmental analysis, et cetera.
23 That may not be within the skill sets of the licensees.
24 That may be difficult for the public to understand.

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1 So, I think a concentration-based system would be easy
2 for all stakeholders to validate the thresholds.

3 That's all.

4 MR. MUSSATTI: Thank you.

5 I'm going to go to the phones one more time.

6 OPERATOR: I'm currently showing no
7 further comments on the phone line.

8 MR. MUSSATTI: Okay. Thank you very much.

9 And we have nothing on the webinar as well
10 that I can see.

11 Does anybody else in the room wish to speak?

12 (No response.)

13 We're doing well on the time. We're just
14 a few minutes ahead of that 15-minutes-apiece pace that
15 I had suggested that we use. So, we don't need to worry.

16 We've got one more talker here.

17 MS. SCHLUETER: Janet Schlueter, Nuclear
18 Energy Institute.

19 I have more of a process question when it
20 comes to the current system, and so forth. And that
21 is, what is NRC doing to reach out to the Agreement
22 States, the Compact Commissions, the waste site
23 operators? Because, as you know, this ultimately
24 becomes an Agreement State, Compact site issue, and

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1 compatibility-level issue, of course.

2 MR. DEMBEK: Hello. My name is Steve
3 Dembek. I work in the Low-Level Waste Branch, and I'm
4 a Part 61 Project Manager in the Low-Level Waste Branch.

5 And I did not work on the 2007 Strategic
6 Assessment, but I did work on the later one for 2016,
7 the Programmatic Assessment. In those assessments,
8 we did ask for public comment, and we did receive
9 comments from the Compacts and the Agreement States.

10 And the same will be in this case with this Very
11 Low-Level Waste Scoping Study. We are going to look
12 for comments from those facilities.

13 And we understand that every time -- let's
14 say very low-level waste is instituted and it saves
15 some companies a lot of money. But every time some
16 company is saving a lot of money, there's another
17 company or another facility that is losing that money.

18 So, we consider that.

19 If the Compact, for instance, says we're
20 depending on this money coming in from some of this
21 low-level waste and we'll have to change the way we're
22 doing business if we're losing this money, certainly
23 that is a legitimate comment we would have to consider.

24 And we want to hear those kind of comments and we want

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1 to consider those comments and make our judgment based
2 on hearing from the public, hearing from the states,
3 hearing from the Compacts, hearing from the industry,
4 hearing from the industry groups, et cetera.

5 Does that answer your question?

6 MS. SCHLUETER: No.

7 MR. HEATH: Can I add onto what Steve said
8 also? And this gets to both points. We do reach out
9 to other federal agencies as well. We contact our
10 Agreement State regulators. And also, coming up, we
11 will be doing presentations at other public events or
12 some meetings at waste management. We will, because
13 we want to get out and communicate well with all
14 different types of stakeholders across the country.
15 So, we are making an effort to make sure that we involve
16 all stakeholders and try to reach everybody, our
17 co-regulators, the public, industry, everybody.

18 MS. MAUPIN: I would just add -- this is
19 Cardelia Maupin. I'm with the Low-Level Waste Branch
20 and a former member of Agreement State Programs.

21 Even in preparing for this meeting, we
22 informed the Agreement States and others as part of
23 the CRCPD OAS monthly telephone call. And we also sent
24 out the all Agreement State letter that informed them

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1 of The Federal Register notices about these meetings.

2 So, I've got calls from the Agreement States already
3 yesterday about these issues. So, we are thoroughly
4 engaging them on these various issues.

5 MR. MUSSATTI: Thank you very much.

6 While all this conversation was going on,
7 our fabulous web master over there has helped out
8 somebody by the name of Lisa Edwards to try to figure
9 out how to get on the phone line. And I'm going to
10 ask if she has been successful in getting the attention
11 of our operator.

12 OPERATOR: Yes.

13 And, Ms. Edwards, your line is open.

14 MS. EDWARDS: Good morning, everyone.
15 This is Lisa Edwards with EPRI.

16 The way I would respond to this question
17 is that I think we have a good place to start by looking
18 both at home and looking abroad in terms of how the
19 20.2002 exemption process determines acceptability now
20 for disposal in RCRA facilities.

21 Agreement States have also licensed
22 various processes that allow some waste that would be
23 similar to what is proposed here to go into alternate
24 disposal facilities from the normal low-level waste

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1 facilities.

2 And multiple countries abroad have
3 developed this waste category, and they have
4 definitions and approaches that they use. I think the
5 NRC could investigate all of those as a basis for how
6 to define this category in the United States.

7 Thank you.

8 MR. MUSSATTI: Okay. Thank you, Lisa.

9 Okay. I'm sensing the need to move on to
10 Question No. 3. I really want to apologize for having
11 to rush through these, but we want to make sure we get
12 all nine. And we're right about on pace right now.

13 So, the Question No. 3 is: "The NRC's
14 alternative disposal request guidance entitled
15 "Review, Approval, and Documentation of Low-Activity
16 Waste Disposal in Accordance with 10 CFR 20.2002 and
17 10 CFR 40.13(a)," which is undergoing a revision,
18 allows for alternative disposal methods that are
19 different from those already defined in the regulations
20 and most often used for burial of waste in hazardous
21 or solid waste landfills permitted under the Resource
22 Conservation and Recovery Act, RCRA. Should the NRC
23 expand the existing guidance to include very low-level
24 waste disposal or consider the development of a new

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1 guidance for very low-level waste disposal?"

2 And we'll start with the gentleman standing
3 at the microphone.

4 MR. MAGETTE: Thank you. This is Tom
5 Magette, Talisman International.

6 So, as to the first question, I would say
7 no. As to the second question, I would say this isn't
8 really a guidance matter. You have guidance that
9 directs how to implement 20.2002 disposal actions on
10 an individual exemption-by-exemption basis, as Larry
11 Camper pointed out.

12 More guidance isn't necessary to do that.
13 Guidance won't create a new category of waste. That
14 would require regulation. So, I really don't see how
15 guidance is applicable here, other than at some point
16 you're going to have guidance in terms of, if you have
17 a new regulatory standard, you have acceptable ways
18 to meet that standard, which is a typical guidance
19 function.

20 But, in this case, I don't see that this
21 is a guidance matter. If you're talking about a site
22 being able to accept a category of waste, then you need
23 something that's more definitive and more robust than
24 guidance, which would be a regulation. For example,

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1 something like surety, which doesn't apply to 20.2002
2 waste exemptions, even if they go multiple times to
3 the same site.

4 So, you would, I think, want to look at
5 that question, what's the surety that's required for
6 a VLLW site? Should you have that as a separate site
7 from other categories of waste?

8 So, no, I don't think guidance is really
9 the answer here. I don't know how that would help.

10 MR. MUSSATTI: Thank you.

11 MS. D'ARRIGO: It looks to me that this
12 question is suggesting -- and maybe I'm
13 misinterpreting -- that the 20.2002 and
14 10 CFR 40.13(a), which are case-by-case, that this is
15 possibly going to be somehow transitioned into generic.

16 In other words, at this point it requires the applicant
17 to make analyses, and this looks like one other approach
18 that the NRC is making to justify generically clearing
19 radioactive waste.

20 And so, we would oppose that and, also,
21 question the basis for the "a few millirems," that is
22 used for 20.2002. My understanding is that it's based
23 on the old Reg Guide 1.86, which was based on the level
24 that the radiation detectors were capable, the levels

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1 of detection that were technically possible in the 1960s
2 and the early seventies, when that 1.86 guidance was
3 developed at the Atomic Energy Commission for a
4 completely different purpose, not for case-by-case,
5 large clearances and not generic clearances. But
6 that's how the NRC has been using it since the BRC
7 policies were overturned in 1992.

8 MR. MUSSATTI: Okay. Another question
9 from the floor here?

10 MR. VICKERS: Glen Vickers, nuclear power
11 generation.

12 I think a process of concentration-based
13 limits could replace 10 CFR 20. 2002. As was
14 previously noted, many licensees don't have the
15 internal skill sets to do complicated environmental
16 analyses, et cetera. The burial site, you could give
17 them a dose objective, and they could do that analysis.

18 And then, once again, it would be easy for licensees,
19 regulators, and the public to verify compliance with
20 the concentration-based limits. So, I think there may
21 be an opportunity to replace 20.2002 with something
22 that's more easy to comply with.

23 MR. MUSSATTI: Okay. I sense some motion
24 in the seats among people. Is anybody interested in

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1 speaking?

2 (No response.)

3 No?

4 Let's go to the phone lines.

5 OPERATOR: One moment, please, for our
6 first comment.

7 MR. MUSSATTI: Go ahead. There's nobody
8 there?

9 OPERATOR: Joe Weismann, your line is
10 open.

11 MR. WEISMANN: Thank you very much.

12 And thanks, NRC, for the opportunity to
13 have this type of public meeting.

14 A lot of the conversations that are going
15 on between these questions kind of weave in between
16 each other. So, I think what I'm going to at least
17 comment on is probably going to touch a little bit on
18 all nine of the questions in some regard.

19 I fundamentally agree with what some of
20 the previous commenters have said, that we do need an
21 improved system. 20.2002 has worked for industry the
22 past, but it is less than optimal. And as Tom Magette
23 mentioned, it does disincentivize some licensees from
24 using it because of the time requirements.

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1 Whether or not the NRC chooses to pursue
2 a rulemaking or not, I don't think that's the only answer
3 here. There are opportunities in guidance, I believe,
4 to vastly improve how 20.2002 is currently
5 administered. For example, for a site like our Idaho
6 facility, which has undergone 15 approvals under
7 20.2002, the NRC knows our site very well. We have
8 performance assessments. There are opportunities for
9 the NRC to, for lack of a better term, preapprove or
10 advance approvals for certain facilities that meet the
11 risk-informed and performance-based criteria that they
12 regulate on. So, that's just one example.

13 A rulemaking, though, could be
14 advantageous for industry, as long as it also is a
15 performance-based standard. So that, in order for a
16 site to qualify to be a VLLW site, it has to meet all
17 kinds of requirements that the NRC would find. And
18 that would include site-specific performance
19 assessment and WAC.

20 And I've heard from the previous caller
21 here about making it easier for industry. Once that
22 approval is granted, then that information would be
23 made available to the industry and they would know,
24 just like they do now with Class A sites, what each

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1 site can do. And I don't see that it has to be
2 fundamentally different for a VLLRW site.

3 So, those are my comments. Thank you for
4 the opportunity.

5 MR. MUSSATTI: Thank you.

6 Is there anybody else in the room?

7 (No response.)

8 Okay. We don't seem to have anybody on
9 the webinar.

10 So, let's move on to No. 4.

11 Oh, a quick question? A quick comment
12 here.

13 MS. D'ARRIGO: Yes, I want to point out
14 that at your previous meeting that you had a couple
15 of months ago on 20.2002 and 40.13(a) that there was
16 strong encouragement of using those regulations to
17 reuse and recycle radioactive waste. And now, you're
18 talking about using this as a potential avenue into
19 creating a new category which you're claiming is only
20 going to be for disposal, and in the meantime that other
21 regulation -- and I completely object to recycling and
22 reusing radioactive waste under 20.2002 or any other
23 way -- but you're looking at using 20.2002 and 40.13(a)
24 as a slide into generic, as the previous speaker said,

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1 that that should just be preapproved.

2 And yet, 20.2002 is potentially for
3 releasing, recycling, and reusing radioactive
4 materials. And you're trying to provide assurance to
5 the public, which I think is a completely false
6 assurance, that once it's cleared for this other type
7 of alternative disposal, that under the very low-level
8 category that it's not going to be used for recycling
9 and reuse. And then, you're going to -- I can just
10 tell you what your next step is -- you'll wait until
11 you get that approved and, then, you're going to use
12 your risk assessment to say, "Oh, well, it's okay for
13 this; let's do it for that, because the risk is totally
14 the same and it's totally acceptable." And I'm telling
15 you that it's totally unacceptable in all of these
16 scenarios.

17 The nuclear industry made this waste.
18 It's part of the cost of doing business for the nuclear
19 industry to isolate it.

20 MR. MUSSATTI: Okay. Comment?

21 MR. DEMBEK: Can I ask Diane a followup
22 question?

23 Diane, on your answer to the first question
24 we pose, and just what you said in this question, you

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1 keep talking about the nuclear industry.

2 MS. D'ARRIGO: Uh-hum.

3 MR. DEMBEK: So, are you only concerned
4 with radioactive waste from nuclear power plants or,
5 like in the beginning of this discussion, we talked
6 about a radiological dispersal device issue, maybe
7 sources that we're trying to dispose of, or other
8 things. I'm just trying to clarify what is your
9 specific concern.

10 MS. D'ARRIGO: Preventing unnecessary
11 exposure to the public, involuntary exposure to
12 ionizing radiation. And primarily, we see the nuclear
13 power fuel chain, nuclear power and weapons fuel chain
14 is the source of this. It's true that there's
15 radioactivity in medicine. Most of the medical
16 isotopes for treatment and diagnosis are very
17 short-lasting. But the iodine-129 from nuclear power
18 has a 16-or-17-million-year half-life. That's a lot
19 different when you're releasing that. It's an
20 irreversible decision for the future.

21 So, we're concerned, especially with
22 long-lasting. But, then, if you've got routine short
23 releases -- I think sealed sources should be better
24 regulated. I don't think there should be general

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1 licenses for high-exposure sealed sources, but that's
2 a separate discussion for a separate day.

3 We're talking now about what you've said
4 at the beginning, the massive volumes of radioactive
5 waste that are going to be coming from the
6 decommissioning of the nuclear fuel chain. And we're
7 just as concerned about the weapons facilities as the
8 nuclear power facilities and all the shared fuel chain
9 facilities along the way routinely releasing
10 radioactivity.

11 The caller earlier mentioned the uranium
12 mines and the radioactivity from that. I mean, that's
13 not being factored in. The NRC, in calculating this
14 1 millirem a year, or whatever you're trying to say
15 would be the allowable -- or a few millirems a year -- is
16 not taking into consideration that more and more of
17 this is happening all over the place, and we're going
18 to have multiple exposures from multiple sources. And
19 that's not calculated in.

20 It's clear that the NRC's goal is to relieve
21 the liability of the nuclear power industry and the
22 nuclear generators and convert that risk, put that risk
23 on the public. You refuse to incorporate any cost for
24 health effects. You deny health effects other than

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1 certain cancers. And yet, these are costs that the
2 public bears.

3 So, when you're talking about risks and
4 the public hears you're doing risk-based, when we don't
5 trust your assessment of risk, it's very difficult to
6 support any kind of risk-based determinations.

7 I don't know if that answers what you were
8 getting at.

9 MR. DEMBEK: Yes. Just a further
10 clarification in that area. As I'm sure you're aware,
11 all of our bodies have naturally occurring radioactive
12 material in them, and that 1 millirem per year is on
13 the order of magnitude that our bodies emit.

14 MS. D'ARRIGO: But it's in addition. It's
15 in addition, and it's in addition many times.

16 MR. DEMBEK: Your concern is the
17 additional? Your concern is with the additional
18 amount?

19 MS. D'ARRIGO: I'm not asking you to clean
20 out the potassium from the bananas or scrub the granite.

21 I mean, I would prefer not to have granite countertops
22 routinely giving off radon and gamma rays in every new
23 home. But there's obviously a distinction, but just
24 saying that there's a certain amount of naturally

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1 occurring radioactive, which is also a certain kind
2 of radioactivity, various certain kinds, does not
3 justify manmade radioactivity.

4 Plutonium is not naturally occurring
5 except for some little place in Africa where it possibly
6 had a spontaneous formation, but, in general, we don't
7 have a lot of these radionuclides natural in nature.

8 And so, it's not fair, it's not acceptable to justify
9 additional manmade exposures to remove liability from
10 the nuclear waste generators.

11 MR. MUSSATTI: No, no. I'm going to
12 try --

13 MS. D'ARRIGO: I'm just answering his
14 question.

15 MR. MUSSATTI: I know, but we're
16 off-topic.

17 MS. D'ARRIGO: Okay.

18 MR. MUSSATTI: And part of what I need to
19 do is to pull us back on-topic.

20 MS. D'ARRIGO: Okay.

21 MR. MUSSATTI: So, I think I'd like to move
22 on to the next question.

23 MS. D'ARRIGO: So, natural exposures don't
24 justify unnatural additional exposures.

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1 MR. MUSSATTI: We're going to move on to
2 the next question now. No. 4, please. "If the NRC
3 were to create a new class category for very low-level
4 waste in 10 CFR Part 61, what potential compatibility
5 issues related to the approval of very low-level waste
6 disposal by NRC Agreement States need to be considered
7 and addressed? How might defining very low-level waste
8 affect NRC Agreement State regulatory programs in terms
9 of additional responsibilities or resources?"

10 We kind of started talking about that the
11 last time. I'm sure there's somebody in the audience
12 that would like to stand up. There you go.

13 (Laughter.)

14 MR. MAGETTE: This is Tom Magette from
15 Talisman International.

16 I think certainly, if you're going to
17 modify Part 61, and if you're going to have a new line
18 in the tables in 61.55, that it's only appropriate that
19 it be Compatibility Category B because that's what 61.55
20 is today. And I think it would be wise to be consistent.

21 I think, frankly, sometimes the NRC goes too far in
22 slicing and dicing within an individual regulation to
23 get some of it B, some of it A, some of it C, some of
24 it D, some of it -- et cetera. So, I really don't think

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1 there's any reason to put it anywhere than in
2 Compatibility Category B if it's a new waste category
3 defined in the regulations.

4 MR. MUSSATTI: Okay. Is there anybody on
5 the phone?

6 OPERATOR: Larry Camper, your line is
7 open.

8 MR. MUSSATTI: Go ahead.

9 MR. CAMPER: Yes. Good morning. Can you
10 hear me?

11 MR. MUSSATTI: Yes, we can hear you.

12 MR. CAMPER: Yes, I think that I would
13 agree totally with what Tom Magette just said. It
14 should be Category B, as is the existing waste
15 classifications contained in Part 61. I can't imagine
16 why it would be anything else but that.

17 As far as what the impact would be on the
18 Agreement States, I think that certain of the Agreement
19 States, the State of Texas in particular, has taken
20 leadership in addressing the disposal of VLLW, if you
21 will, via the RCRA cell for the WCS in Texas. So, I
22 think their view would be paramount for consideration
23 as the NRC moves ahead in considering this matter.

24 Thank you.

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1 MR. MUSSATTI: All right. Thank you, Mr.
2 Camper.

3 I believe we have a comment on the floor
4 here.

5 MS. D'ARRIGO: It's Diane D'Arrigo.

6 There are a number of states, in the range
7 of 14 states, that passed laws that require continued
8 regulatory control over radioactivity materials, even
9 if the federal government decides to deregulate in some
10 of those, if other states decide to deregulate. So,
11 it would be important not to try to supercede existing
12 state laws and regulations.

13 MR. MUSSATTI: Thank you very much.

14 Any comments from the panel?

15 (No response.)

16 Back in the room?

17 (No response.)

18 Nothing on the webinar?

19 (No response.)

20 If we don't have anybody on the phone, I'm
21 going to take advantage of the shortness of this comment
22 response and try and gain some time for us.

23 Okay. Let's move on to No. 5. Please feel
24 free, if you have an "aha moment" and think of something

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1 from No. 4 in the future here, you can bring it up because
2 we've gained quite a bit of time here.

3 "Following the Low-Level Radioactive Waste
4 Policy Amendments Act of 1985, states formed regional
5 Compacts for the disposal of low-level radioactive
6 waste. If the NRC were to create a new waste category
7 for very low-level waste, does it fall within regional
8 Compact authority to control very low-level waste
9 management and disposal? How might defining very
10 low-level waste affect regional Compacts in terms of
11 additional responsibilities or responses?"

12 It's kind of a deja vu there at the end,
13 but a difference.

14 Yes, sir?

15 MR. SHRUM: Hi. Dan Shrum with
16 EnergySolutions.

17 I chose to speak on this particular topic
18 because, actually, Tom and I have a bit of a
19 disagreement, and for us to disagree on something, I
20 think you're going to be walking into somewhat of a
21 gray area on this specific issue.

22 So, if you go back to Question 2, should
23 there be a new category, A, B, C, greater than C -- oh,
24 I'm sorry, you don't actually have to go back. If you

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1 have a very low-level category and it falls under Part
2 61 -- I don't speak on behalf of the Compacts, but I
3 do deal with all of them -- they may want to or feel
4 obligated to regulate very low-level waste. I think
5 that would fall within their purview or they may
6 consider that that falls within their purview.

7 So, it's just something to consider as you
8 go about making this rule. If you decide to pull very
9 low-level waste out and place it in some other
10 regulation, which would also be difficult, that might
11 remove the Compacts from their belief or their desire
12 to regulate it. Again, I don't speak for the Compacts,
13 but I do know that they are very concerned or they do
14 discuss very low-level waste and how it will impact
15 and what authority they have over waste coming into
16 their states. That's my comment.

17 MR. MUSSATTI: Okay. Thank you. Good
18 position.

19 Comment from the panel?

20 (No response.)

21 There doesn't seem to be anybody online
22 that's asking a question.

23 On the telephones?

24 OPERATOR: There's no comments on the

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1 phone line.

2 I would like to remind participants, if
3 you would like to leave a comment, then please press
4 *1.

5 MR. MUSSATTI: Okay. Back to the room.

6 (No response.)

7 All right. We may be having a little
8 longer lunch than we were anticipating if we keep going
9 at this pace.

10 OPERATOR: Sir, it looks like we have a
11 comment on the phone.

12 MR. MUSSATTI: Good. Good.

13 OPERATOR: Okay.

14 Marvin Lewis, your line is open.

15 MR. LEWIS: Thank you.

16 Yes, I admit I was hollering before, and
17 I think deservedly so, because the NRC doesn't seem
18 to listen to anything it doesn't want to hear, nor does
19 the industry. The industry, I have to admit back in
20 the day, 1979, the industry did listen to me, and Three
21 Mile Island No. 1 is operating with hardened vents,
22 which I put into a contention. And it was accepted,
23 making my intervention moot. But I got what I wanted
24 like that.

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1 Now here we are with another situation,
2 another situation where the NRC is doing its best to
3 make it a cheap power source and a cheap source of
4 nuclear materials for the nuclear arsenal. I find that
5 just about every question here is aimed at reducing
6 costs to the industry and reducing costs to the
7 military, the nuclear arsenal.

8 MR. MUSSATTI: Okay. Are we bringing this
9 around to the topic at hand?

10 MR. LEWIS: I would like to see a little
11 more honesty out of the NRC.

12 Thank you.

13 MR. MUSSATTI: Thank you very much.

14 Okay. Where are we? Up to No. 6 by now?

15 Okay. Question No. 6, "The Environmental Protection
16 Agency imposed waste analysis requirements for
17 facilities that generate, treat, store, and dispose
18 of hazardous wastes that are different in 40 CFR Parts
19 264 through 270. How would NRC incorporate and apply
20 waste analyses requirements for very low-level waste
21 at RCRA Subtitle C and D facilities? Should the NRC
22 impose concentration limits and/or treatment standards
23 for very low-level waste disposal?"

24 Our concentration level expert may have

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1 something to say on this in a moment, but do we have
2 any comments from the floor?

3 Yes?

4 MR. MAGETTE: This is Tom Magette.

5 So, I guess I would start with asking the
6 NRC a question on this one. Because there's already
7 significant volumes of waste going to Subtitle C and
8 D facilities under 20.2002, my question is, have you
9 consulted with EPA on those exemption applications so
10 far?

11 MR. HEATH: Well, Tom, this is Maurice
12 again.

13 I want to ask you something in return to
14 your question. Are you saying, are you referring to
15 a 20.2002 that would go to a RCRA facility? Is that
16 what you're saying?

17 MR. MAGETTE: Yes.

18 MR. HEATH: When NRC does 20.2002s, we are
19 involved if it's in a non-Agreement State such as Idaho,
20 as someone has mentioned previously. And we work with
21 the state as well as the utility submitting the
22 application to us. So, that's how the process works.

23 So, are you referring to is there a separate
24 communication with EPA regarding that?

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1 MR. MAGETTE: Yes. I mean, this kind of
2 raises the question that, hey, maybe we'll go ask EPA
3 what they think we should do with waste going into these
4 kind of sites. And wastes like this is already going
5 into those kind of sites. So, I'm kind of wondering,
6 is the question just now coming up or is it something
7 that you do as part of all these individual exemption
8 applications? Is this new or not new?

9 MR. HEATH: No, this is not new.

10 MR. MAGETTE: Okay.

11 MR. HEATH: And we are; we've reached out
12 to EPA at the beginning of the Very Low-Level Waste
13 Scoping Study. And we are working with other agencies
14 during this effort. But, previously, with that, we
15 make sure when we get in these requests that we follow
16 the rules that have been set per the RCRA permits.
17 So, we make sure that what is trying to be disposed
18 in that facility meets the waste acceptance criteria
19 that has been developed through those RCRA permits and
20 what the EPA has for that RCRA Subtitle C facility.

21 MR. MAGETTE: Okay. So, it seems to me
22 that there are a couple of differing points here. One
23 is, obviously, I would expect the EPA to comment on
24 its own behalf, if you were to promulgate a rule in

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1 this regard, and speak to whether or not this is
2 something that could be categorized in order to go into
3 those sites, or if there would continue to be some
4 necessary consultation.

5 But it seems to me, if you create a VLLW
6 waste category, then the answer would be, no, you don't
7 need that. I do think you need concentration limits
8 or risk-based. You know, if you're going to do, as
9 I commented earlier, a back-calculated waste acceptance
10 criteria from a PA, I think that would be fine. But
11 I think you need some sort of specificity around the
12 limits.

13 As for treatment, I don't think that you
14 need treatment standards for something that is a lower
15 risk than the waste that today doesn't have a treatment
16 standard. So, unless you're talking about a waste
17 stream that, in order to comply with some regulation
18 for some reason, requires treatment -- I mean, mixed
19 waste comes to mind, for example -- I don't think VLLW
20 as a category merits a treatment standard. So,
21 concentration, yes, or risk-based, but some level of
22 concentration, whether it's in the reg or whether it's
23 derived, yes; treatment, no.

24 MR. MUSSATTI: Okay. Thank you very much.

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1 We have one commenter on the line.

2 MS. MAUPIN: I don't know if
3 Maurice -- this is Cardelia Maupin -- if Maurice wanted
4 to mention that we do have, you know, sometimes have
5 conference calls or discussions with EPA. And also,
6 most of the Agreement State programs are either in their
7 Department of Health or in their environmental quality
8 department of the state. And some states are, as you
9 know, EPA-designated states where they have entered
10 into an agreement with the EPA that they will carry
11 out the EPA requirements within their state.

12 Okay. Thank you.

13 MR. MUSSATTI: Okay. Yes?

14 MS. D'ARRIGO: It's Diane D'Arrigo.

15 Would treatment allow for dilution? In
16 the whole low-level waste scheme over the decades,
17 originally, it was not permitted for waste to be
18 down-blended or made from Class C to go to Class A.
19 However, then, those regulations changed or the
20 guidance changed.

21 So, with this, you're talking about
22 potential treatment. Would one of the treatments be
23 allowing higher contaminated waste to be diluted to
24 meet -- or would you just do a calculation, an overall

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1 averaging over a much larger amount, and then, allow
2 all of that stuff in the same vein that it's supposedly
3 going to go into the EnergySolutions site in Utah and
4 go above Class A levels by averaging? Could this, then,
5 happen with this very low-level category?

6 The other concern is, and I would
7 ask -- it's part of the next question as well -- what
8 is the NRC doing with regard to risk of synergistic
9 hazardous and radioactive combined stressors on health
10 effects in determining allowable release levels or -- I
11 don't know if you're calling them "recategorization
12 levels".

13 MR. MUSSATTI: Thank you.

14 We had a question?

15 MR. HEATH: Well, let me address the
16 comment, Dan?

17 MR. MUSSATTI: Yes, sure.

18 MR. HEATH: Diane, just what you were
19 saying about, you were referring to mixing, and we're
20 not talking dilution when we're talking treatment.
21 We're trying to get comments on treatment. The
22 question is -- and maybe I should clarify this for
23 everybody -- the question is design, just to get
24 feedback on things that we should look at if we're

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1 talking with these type of wastes.

2 And we recognize currently how disposals
3 are. We earlier talked about 20.2002 and these RCRA
4 Subtitle C hazardous waste facilities. So, we're just
5 trying to get comments on things that we should consider
6 when we're looking at, you know, if we develop a very
7 low-level waste category or not. We're just looking
8 for feedback. We're not trying to make any decisions
9 or imply that some decision has been made through this
10 slide. So, I just wanted to make sure I clarify that
11 with you.

12 So, we're looking here --

13 MS. D'ARRIGO: So, maybe I'm --

14 MR. HEATH: -- for feedback.

15 MS. D'ARRIGO: Oh, I'm sorry.

16 So, maybe I'm moving into Question 7 about
17 unintended consequences, but it looks like there are
18 a lot of ways that the promise that it's not going to
19 get into reuse or recycling, or that statement that's
20 in The Federal Register that it's not going to be used,
21 that very low-level waste will not be reused or
22 recycled, how is that going to be enforced when
23 sometimes solid waste facilities do subsequently
24 separate out and allow for reuse and recycling of

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1 materials that are there? I know several specific
2 facilities that do that.

3 It's unrealistic to expect that the kinds
4 of protections are going to be provided that you are
5 claiming. Once this stuff is no longer considered
6 radioactive and it doesn't have radioactive controls,
7 it's no longer radioactively controlled, and you can't
8 trust some other hazardous or solid waste regulations
9 to protect us from the radioactive component.

10 MR. MUSSATTI: We have one more question
11 on the floor, and I think we had a comment that was
12 on the webinar.

13 MR. VICKERS: Glen Vickers, nuclear power
14 generation.

15 So, we already have a required list of
16 radionuclides we have to routinely analyze for. I
17 think that works as a good, fundamental set for any
18 category.

19 I also recognize that a disposal facility
20 in a specific state may have to have another nuclide
21 such as radium for water treatment residuals, et cetera,
22 or their limits may be lower than Class A, B, or C.
23 But I think we already have a list of analyses that
24 are required by Part 61 that would aid in consistency

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1 and getting a new rule off of the ground.

2 MR. MUSSATTI: Okay. Thank you.

3 I wish you folks that were on the phone
4 and on the webinar could have seen the staff here, the
5 scrambling to try to turn this comment from tech-speak
6 into something we understand.

7 Would you like to read that comment?

8 MS. ACHTEN: It's for Question 5.

9 MR. MUSSATTI: It's for Question 5?

10 MS. ACHTEN: Yes.

11 MR. MUSSATTI: I think we've still got time
12 to do that, and that will clear it up. I think we're
13 pretty well done with 6 here in a minute. Go ahead
14 and read this comment.

15 This comment is related to Question No.
16 5. That's what all that discussion was about.

17 MS. ACHTEN: The question on the webinar
18 is, "The Low-Level Radioactive Waste Policy Amendment
19 Act of 1985, Section 3(a)(1)(A), establishes Compact
20 authority over low-level waste as low-level waste was
21 defined of January 26, 1983. You would need to change
22 the Act to alter the authority of the Compact
23 Commissions."

24 MR. MUSSATTI: Okay. Good

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1 considerations.

2 Back to 6. Do we have any other comments?

3 Anybody on the phone?

4 OPERATOR: Yes. We have a comment from
5 Joe Weismann.

6 Your line is open.

7 MR. WEISMANN: Thank you very much.

8 As far as Question No. 6, the relationship
9 between NRC and EPA is very well understood and has
10 been working, I would say, very well since the
11 institution of the Memorandum of Understanding on mixed
12 waste. So, I don't see any issues with the NRC
13 extending that type of interpretation and regulation,
14 if they were to create a very low-level waste category
15 in Part 61.

16 Us as RCRA operators, our primary
17 objective, if we want to take low-activity waste, is
18 it has to exit out of NRC regulatory space first. Then,
19 the material is, then, accepted into RCRA regulatory
20 space.

21 And in our State, in Idaho, we have a robust
22 regulatory scheme for radioactive materials as part
23 of our RCRA permit. So, contrary to what some of the
24 commenters have said, once the NRC releases regulation

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1 of this material, it's not like it fails to be regulated
2 after that. It's just regulated under a different
3 scheme. And depending on the state and the type of
4 regulation they choose to enact, they can also be very
5 rigorous.

6 So, for going forward on this, I don't see
7 No. 6 as being a particularly difficult issue to
8 overcome, considering the NRC and EPA's history and
9 how the wastes are currently regulated now.

10 Thank you.

11 MR. MUSSATTI: Okay. Thank you.

12 One more comment?

13 MS. D'ARRIGO: I just wanted to know if
14 Joe Weismann is with US Ecology. I don't know who he
15 is, and he's been commenting. I would be interested
16 to know his affiliation, the person that just spoke.

17 MR. MUSSATTI: Okay. Our friend, the
18 operator, could you find out what the affiliation is
19 of the gentleman that we just talked to?

20 OPERATOR: Yes. And actually, his line
21 is still open.

22 MR. WEISMANN: Yes, Joe Weismann. I am
23 with US Ecology.

24 MR. MUSSATTI: Okay. Thank you very much.

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1 That also helps our court transcriber.

2 Remember, when you introduce yourself, to
3 give your affiliation. That's very helpful for us.

4 At this time -- this has been a lot. We've
5 like been drinking from the fire hose here this morning,
6 a lot of information and a lot of discussion -- I would
7 like to take about a 10- or 15-minute break and come
8 back, give everybody a chance to decompress a little
9 bit.

10 According to up here, it's now 10:29.
11 Let's be back by 10:45 and we'll finish out the morning.

12 (Whereupon, the foregoing matter went off
13 the record at 10:29 a.m. and went back on the record
14 at 11:45 a.m.)

15 MR. MUSSATTI: Okay. This is how the
16 second half of this morning's session is going to go.
17 We've got Questions 7, 8, and 9. That's only three
18 of them. And we've got quite a little bit of time to
19 take care of them.

20 So, once we've gone through all these last
21 three questions, we've got time to go back and revisit,
22 kind of at will, any one of the nine questions that
23 you've got a comment that you hadn't made before and
24 that you would like to make now or to expand on the

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1 scope just a little bit beyond the narrow scope that
2 we have on the questions.

3 We're not going to go to lunch early and
4 come back early and start early because we've made a
5 promise to the people that are on the webinar and on
6 the telephones that we would start at one o'clock in
7 the afternoon for their topics. And if it's something
8 that's important to them and we've started early, they
9 could miss out on something that they feel important,
10 you know, very strongly about. So, we're going to start
11 back at one o'clock, even if we do wind up finishing
12 early here. And that just winds up being a bonus to
13 you folks.

14 You don't necessarily have to sample the
15 cuisine of the NRC. You would have a little bit more
16 time and flexibility to wander off-campus, remembering
17 that you've got to come in through the front doors like
18 normal, but you'll have your badge with you. So, that
19 might help.

20 With that, let's get on to Question No.
21 7. "Are there any unintended consequences associated
22 with developing a very low-level waste category?"

23 And, yes, sir?

24 MR. VICKERS: Glen Vickers, nuclear power

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1 generation.

2 I think we already have a lot of experience
3 at RCRA facilities that you could refer to when handling
4 low levels of radioactive materials.

5 MR. MUSSATTI: Okay. I'm going to go to
6 the phone to give people in the room a chance to take
7 a few more notes as to what they want to say. Do we
8 have anybody interested?

9 OPERATOR: As a reminder, please press *1.
10 One moment.

11 MR. MUSSATTI: We changed operators.

12 OPERATOR: One moment for our first
13 question.

14 MR. MUSSATTI: Somebody's on the line?

15 OPERATOR: Our first question comes from
16 Janati.

17 Your line is open.

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

19 Rich Janati, Pennsylvania Department of
20 Environmental Protection.

21 One of the unintended consequences could
22 be the potential impact on the existing low-level waste
23 disposal facilities as it relates to the amount of waste
24 that they have been receiving. If we have a separate

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1 category of very low-level waste, then what would be
2 the impact on the existing disposal facilities? This
3 should be a consideration.

4 MR. MUSSATTI: Okay. Is that all?

5 We have somebody on the panel?

6 MR. HEATH: This is Maurice, NRC.

7 Rich, just a clarifying question to you.

8 MR. JANATI: Yes.

9 MR. HEATH: When you are referring to
10 disposal facilities, are you specifically just talking
11 about low-level waste, Part 61?

12 MR. JANATI: That's right, low-level waste
13 disposal facilities --

14 MR. HEATH: Okay.

15 MR. JANATI: -- because of the amount of
16 volume that they will be receiving could potentially,
17 you know, increase substantially. So, from an economic
18 point of view, it will be a potential impact on the
19 existing facilities. And I'm particularly talking
20 about Part 61 facilities.

21 MR. MUSSATTI: Okay. That cleared it up
22 for you, Maurice?

23 MR. HEATH: Yes. Thank you.

24 MR. MUSSATTI: Okay. All right. Thank

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1 you very much for that comment.

2 Larry, I see that you've made a comment
3 online. So, you tried to get on for Item No. 6. After
4 we get done with Item No. 9 here on the list, I think
5 I'll jump right back to you. So, consider yourself
6 almost on deck.

7 Is there anybody in the room that would
8 like to comment on this unintended consequences
9 question?

10 Okay. There we go.

11 MS. D'ARRIGO: So, I guess I wanted to
12 clarify, are the comments that we're making here
13 verbally part of the official comments or this is just
14 a discussion?

15 MR. MUSSATTI: Yes, these are official
16 comments and these are going to be part of the
17 transcribed record. They're going to go into ADAMS.

18 MS. D'ARRIGO: Okay. So, I don't know
19 whether the consequences are intended or not, but I
20 do think that the materials, the waste, could get out
21 into commercial products and into recycling. Even
22 though you're writing in your Federal Register notice
23 that you don't want them to, the possibility is that,
24 once they're released from radioactive controls, that

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1 they could become reused and recycled, especially in
2 light of the fact that NRC is encouraging, under 20.2002
3 and 40.13(a), to reuse and recycle radioactive waste.

4 MR. MUSSATTI: Thank you for that comment.

5 MR. HEATH: Diane, I just want to address
6 that. Thanks for that comment. But I just wanted to
7 make it clear that just today we're talking about very
8 low-level waste and we're talking about disposal.
9 We're not discussing anything, we're not talking about
10 any kind of release criteria or anything to that nature.
11 We're specifically just talking about disposal at a
12 regulated facility.

13 MS. D'ARRIGO: And this question is, what
14 are the unintended consequences of that? So, that's
15 where it goes beyond what you want to keep the limits.

16 I'm saying that you can't guarantee that and an
17 unintended consequence is that it gets out beyond your
18 scope here today.

19 MR. HEATH: Oh, okay. Understood. Thank
20 you.

21 MS. D'ARRIGO: But I think there's also
22 the unintended consequence that people will be exposed.

23 Landfills leak. Solid waste landfills leak. In 20
24 or 30 years -- they do have liners; liners leak.

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1 There's not an economic way to monitor. I mean, the
2 drinking water in this country is not routinely
3 monitored for radioactivity. So, the leachate from
4 landfills is not going to be routinely monitored for
5 radioactivity. But, if more and more radioactive
6 materials go into solid waste facilities, which already
7 do leak, then radioactivity is eventually going to be
8 leaking out. We're dispersing the radioactivity from
9 the nuclear power and weapons complex.

10 MR. MUSSATTI: Thank you.

11 We have another comment here on the floor?

12 MR. SHRUM: Dan Shrum with
13 EnergySolutions.

14 Through that comment it made me think of
15 something, and you responded. But it should be very
16 clear that, if a release standard is developed for very
17 low-level, so that it can go to a facility that can
18 receive it, that only applies for disposal. That's
19 what you're saying, correct? This release will not
20 apply to other items that may not go for disposal?

21 MR. DEMBEK: Yes, that's correct. What
22 we're talking about for the Very Low-Level Waste Scoping
23 Study is to discuss and consider how we could change,
24 possibly change, the regulatory limits, possibly change

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1 the guidance to talk about material that is on the low
2 end of the radiation, say, Class A, low end of Class
3 A, and can go into another disposal facility, such as
4 municipal waste facility or a RCRA facility. We're
5 not talking about changing the 20.2002 process, which
6 could talk about disposal of even lower levels of
7 radioactive material and possibly recycling or release.

8 So, that is the procedure on a case-by-case basis that
9 could talk about releasing this material, recycling
10 this material. We're not talking about doing that in
11 the Very Low-Level Waste Scoping Study.

12 MR. MUSSATTI: Okay. That clarifies
13 that.

14 More?

15 MS. D'ARRIGO: Yes. I would like to have
16 a scenario of, say, a large amount of radioactive metal
17 that goes to some disposal facility. Once it is cleared
18 or determined to be so very low-level that it doesn't
19 need radioactive labeling or protection, how is that
20 going to be kept out of the recycling stream? Are you
21 only going to let it go to facilities that guarantee
22 that none of their solid waste gets recycled?

23 MR. HEATH: Diane, what we're talking
24 about is simply disposal.

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1 MS. D'ARRIGO: I know.

2 MR. HEATH: So, to address your scenario,
3 with the Very Low-Level Waste Scoping Study, if the
4 material is contaminated, we are talking about in a
5 package and disposal to keep it separate, as we said
6 earlier, out of the biosphere. So, we are talking about
7 in a package, disposed at a regulated facility. That's
8 what we're addressing. We're not talking about
9 anything about any clearance or cleared material.
10 We're talking about metal in a package being disposed
11 at a regulated facility. That's the intention.
12 That's what we're --

13 MS. D'ARRIGO: At a regulated facility?
14 A regulated facility?

15 MR. HEATH: Yes, that is correct.

16 MS. D'ARRIGO: What kind of regulated
17 facility? It sounds to me like you're saying you're
18 going to send it to a solid waste, a RCRA C or D facility.
19 So, RCRA C or D facilities are not regulated for
20 radioactivity.

21 MR. HEATH: Now we are talking about a
22 regulated facility and --

23 MS. D'ARRIGO: Radioactive regulated?
24 What kind of regulated?

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1 MR. HEATH: And RCRA Subtitle facilities
2 are hazardous waste, but do take constituents that are
3 low concentrations of radioactivity. They are
4 regulated. And so, we're making that -- I'm sorry.

5 MR. DEMBEK: Yes. This is Steve Dembek.

6 Just to follow on to what Maurice is saying,
7 we're talking about a regulated disposal facility.
8 So, it's going to be isolated from the public, and it's
9 going to have that barrier from the public. It's going
10 to be disposed of with other potentially hazardous
11 material in those facilities and isolated from the
12 public in that manner.

13 And getting back to your point about the
14 contaminated metal, basically, all steel after the
15 atomic bomb, atmospheric atomic bomb explosions is
16 contaminated. So, I'm not sure where you're trying
17 to draw the line there as far as what could be, what
18 has to be buried at one of these facilities or what
19 doesn't. If you can clarify that for me again, that
20 would be helpful because --

21 MS. D'ARRIGO: It's my understanding that
22 steel has lower background radioactivity than other
23 materials. But the point I'm trying to -- the question
24 is, what are unintended consequences? I am saying that

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1 I believe you have every intent in this discussion to
2 only send it to a specific landfill, incinerator, solid
3 or hazardous waste facility, licensed under RCRA C or
4 D by the EPA. That sounds to me like you're limit on
5 your discussion. I'm saying that I know of situations
6 where those facilities allow some of their materials
7 to not necessarily just be disposed.

8 MR. MUSSATTI: Okay. I think what we want
9 to do is we want to hear from somebody else.

10 MS. D'ARRIGO: I'm trying to understand
11 how you're going to prevent the --

12 MR. MUSSATTI: I understand. I
13 understand, but what we need to do is probably get
14 another voice in here that can explain somewhat.

15 Yes?

16 MR. MCKENNEY: This is Chris McKenney.
17 I'm the Chief of the Performance Assessment Branch.

18 And, Diane, exactly that type of scenario
19 needs to be evaluated and addressed on how that would
20 not occur if we were to go forward in a rulemaking.
21 What are the constraints? What are the other things
22 to avoid those type of scenarios? Those would have
23 to be evaluated because that wouldn't be our intent,
24 is to allow a situation that would allow for the stuff

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1 to be sent to a landfill with the intention for disposal,
2 but, then, it be redirected into another situation.
3 But those would have to be things.

4 So, thank you for bringing up that scenario
5 and those comments.

6 MS. D'ARRIGO: So, you are staff that's
7 dealing with this potential rulemaking?

8 MR. MCKENNEY: Yes, I am. I am. I am.

9 MS. D'ARRIGO: Okay.

10 MR. MCKENNEY: We don't have a rulemaking
11 at this time.

12 MS. D'ARRIGO: I said "potential".

13 MR. MCKENNEY: Right. This discussion --

14 MS. D'ARRIGO: We hope doesn't happen.

15 MR. MUSSATTI: Okay. I hope that answered
16 some of your concerns, that they are actually looking
17 into these things for you, or for us, all of us.

18 Are there any other comments from the
19 floor?

20 (No response.)

21 Anything on the webinar?

22 (No response.)

23 Our operator, do we have anybody that's
24 online or on the phone lines?

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1 (No response.)

2 I have lost my operator?

3 OPERATOR: Oh, I'm sorry, I was on mute.

4 Jay Cumbow (sic), your line is open.

5 MS. CUMBOW: My name is Kay Cumbow.

6 And, yes, I agree with Diane. The
7 scanners -- you're also talking about municipal
8 landfills. At least that's what it says in The Federal
9 Register notice. And many municipal landfills do not
10 possess scanners, and if they do, they're not used as
11 well as they could be. They also are gamma radiation
12 scanners. So, they don't scan for alpha and beta.
13 And so, things like plutonium and americium, neptunium,
14 and many, many others don't show up if you're scanning
15 for them.

16 And they're going to outlast any liner of
17 landfill, and landfills leak. In Michigan many, many
18 landfills have leaked into groundwater or into nearby
19 communities. So, if you've got stuff that's going to
20 outlast a liner, then it's going to get into the food
21 chain and, yes, it's going to be a problem downline.

22 We're surrounded here in Michigan by water,
23 by the Great Lakes. I think you can go anywhere in
24 Michigan and be eight miles away from water. So, it's

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1 a very serious, it's a very serious concern.

2 MR. MUSSATTI: Okay. All right. Thank
3 you for your comment.

4 Could you please tell us if you're
5 affiliated with an organization?

6 MS. CUMBOW: Oh, sure. I did when I first
7 signed on here. It's Citizens for Alternatives to
8 Chemical Contamination.

9 MR. MUSSATTI: Okay. Thank you very much.
10 Did I cut you off in the middle of your
11 comment or were you coming to an end when I broke in?

12 MS. CUMBOW: Well, I just think that, once
13 it's released into a regular landfill, that there's
14 not going to be any controls. If something looks like
15 it's something in good shape, and it's not labeled as
16 radioactive, people are going to use stuff. They do
17 all the time.

18 MR. MUSSATTI: Okay. Thank you. I
19 appreciate that comment.

20 We have another commenter in the room.

21 MR. MAGETTE: Hi. This is Tom Magette.

22 So, I think Diane and the last commenter
23 actually raise a really valid point, and it probably
24 goes to my assumption. Yes, I think it's something

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1 like that. So, my assumption is we're talking about
2 a licensed site. We are talking about a waste stream
3 that's profiled and manifested. In other words, it's
4 regulated like a Part 61 waste stream is regulated
5 today. It's just a different hazard level and a
6 different category.

7 Now that's probably not necessarily a
8 reasonable assumption for me to make. So, that
9 probably goes back to -- I don't know -- Question 2
10 or 3 as to what is it that you should do; how should
11 you regulate this waste?

12 So, I think the way to properly control
13 it, and to demonstrate to the public that you are
14 properly controlling it, should have those protections
15 built in. So, if you're going to talk about a lower
16 activity level, it's not been, to my
17 understanding -- and Dan asked for clarification a while
18 ago, and Steve gave it to him -- it's not about
19 clearance. It's not about a release standard. It's
20 not about a scanner at the gate of a disposal site.
21 It's not about gamma emitters only, or at least it
22 shouldn't be, I think.

23 It's reasonable to say that there are
24 lower-hazard waste streams that are going into Class

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1 A disposal facilities that don't need to. The level
2 of protection provided by those facilities isn't
3 necessary. That's not saying, therefore, just throw
4 it in the trash. That's not my expectation.

5 So, understand that unintended consequence
6 of how you define these things could be that, all of
7 a sudden, there's another escape hatch, so to speak.

8 But, if you're profiling a waste stream and you're
9 manifesting it, and you're sending it to a site that
10 has been analyzed, shown to be acceptable, and is,
11 thereby, licensed, then those are the kind of
12 protections that need to be built into this system,
13 so that those consequences, in fact, don't occur.

14 Thank you.

15 MR. MUSSATTI: Okay. We did have a
16 comment from Lisa on the webinar that's saying that
17 she's having a hard time hearing people. If you would
18 turn the microphone up towards your mouth a little bit
19 closer when you speak, I think that would be very
20 helpful.

21 And they're having trouble hearing the
22 operator, if you've got a volume control.

23 We have one more comment from the floor
24 on this issue.

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1 MS. D'ARRIGO: How much plutonium are you
2 envisioning is going to be allowed in the very low-level
3 waste category?

4 MR. HEATH: Right now, this is the
5 beginning of this Scoping Study. We're just trying
6 to get comments from everybody. We haven't made any
7 type of decision or determination on anything, any
8 values or anything to that nature. We're just in the
9 beginning phase. So, we're just trying to get comments
10 from everybody.

11 MR. TAPPERT: John Tappert, NRC staff.

12 So, just to reinforce what Maurice just
13 said, this is very much early days. I mean, there's
14 not a proposal that we're advocating for any changes
15 at all. And we just really want to get the perspectives
16 of the stakeholders. And so, I think this has been
17 very beneficial to hear people's comments about the
18 values of concentration basis, concerns about dilution
19 and the availability of some of these RCRA cells or
20 others, how well they can isolate. So, that's kind
21 of the feedback and comments we're looking. I think
22 that's very helpful.

23 But I just want to say again that we're
24 not advocating a certain position. So, we don't have

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1 concentrations that we're proposing. We don't have
2 controls, how we would implement those controls to
3 ensure the full disposal.

4 So, it's early days to think about, are
5 there alternatives to isolating this waste for
6 disposal, not recycling, not for reentering into the
7 commerce chain? And so, I think all these thoughts
8 and perspectives are helpful.

9 Thank you.

10 MR. MUSSATTI: Okay. You're just going
11 to provide additional information or is this going to
12 be --

13 MS. D'ARRIGO: It's another question.

14 MR. MUSSATTI: Okay.

15 MS. D'ARRIGO: So, what I meant by the
16 previous question specifically with plutonium, my point
17 is that I'd like to know if there is some consideration
18 of limiting which materials could be subject to the
19 very low-level category. Class A has plutonium. It
20 has iodine, long-lasting. It has got everything.
21 It's got all of the isotopes in it.

22 So, if you're talking about just taking
23 a slice out of the bottom of the Class A category, it
24 sounds to me like you're taking a slice out of the whole

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1 alphabet soup of radionuclides. Is there any
2 consideration to only allowing very short-lasting
3 radioactivity that couldn't leak before it's exceeded
4 its 10 half-life decay period?

5 It seems like the way the 10 CFR 61 runs
6 is that we've got all of the isotopes in most of the
7 categories. I mean, I realize B and C have some
8 distinctions. But I'm wanting to know what thoughts
9 are being given to that very low-level. Would it
10 include materials that should by no means be released?

11 MR. DEMBEK: Yes, this is Steve Dembek
12 again.

13 To respond to that, yes, we want to hear
14 comments like that. We want to hear comments that some
15 things in the waste classification tables may not be
16 appropriate to put into these very low-level waste
17 facilities or some other materials that aren't on the
18 waste classification tables are appropriate for putting
19 in there or not putting in there. We also want to hear
20 any comments on if the waste classification tables need
21 to be expanded to include additional radioactive
22 material. And any kind of comment like that are the
23 comments we're looking for. We're very early in the
24 Scoping Study at this point and we do want to hear

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1 comments like that. And we want to thoroughly consider
2 comments like that.

3 Because there were a couple of comments
4 saying we could use the current waste classification
5 tables, but do they need to be expanded? If the set
6 of materials that are proposed to go into these
7 facilities is a lot more than what was proposed back
8 in the 1980-1982 timeframe when Part 61 was created,
9 then maybe we need to consider that, consider changing
10 that. So, we want to hear all those comments and
11 consider all those comments.

12 MR. MUSSATTI: This is a good segue for
13 me. This is exactly why we want you to follow up
14 anything that you say in here with written comments
15 that are emailed in or sent back to us through whatever
16 vehicle we have available, because this is all important
17 information. We don't want to lose any of it. And
18 we want you to be able to expand upon what it is that
19 you've said.

20 But I want to move on to Question No. 7.

21 Wait. We've got something here? We had
22 a question on the webinar. And as soon as you find
23 the "on" button --

24 MS. ACHTEN: This is from Elizabeth

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1 Zimmerman on the webinar. "What contingency plans will
2 be in place in the event of an unintended consequence?"

3 MR. MUSSATTI: Well, that's a real broad
4 question. Do you care to talk about the scoping process
5 one more time?

6 MR. HEATH: Well, sorry, I didn't catch
7 the first name of that person who gave the question,
8 but --

9 MR. MUSSATTI: Elizabeth.

10 MR. HEATH: Elizabeth, thank you for that
11 question.

12 We're in the early phase. So, we have not
13 begun any type of evaluation. We're just trying to
14 receive comments on ideas and things that we should
15 look at during this Scoping Study.

16 MR. MUSSATTI: Okay. We're going to move
17 on to Question No. 7 now.

18 MS. D'ARRIGO: Can I just -- you said a
19 minute ago that we could email our comments in.

20 MR. MUSSATTI: Yes.

21 MS. D'ARRIGO: And I would like to have
22 an email address for comments. There is not one in
23 The Federal Register, and we would like to have an email
24 address.

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1 MS. JAMERSON: That information will be
2 provided after we discuss the questions.

3 MS. D'ARRIGO: You're saying that there's
4 possibly going to be an email address provided?

5 MS. JAMERSON: It's on the back of the
6 agenda as well, the methods for providing comments.

7 MS. D'ARRIGO: Right. Which doesn't
8 include an email option. It's regulations.gov, and
9 it's paper snail mail.

10 MS. JAMERSON: There's email addresses for
11 contact information.

12 MS. D'ARRIGO: But not for official
13 comments. I'm asking for --

14 MS. JAMERSON: Not for email submission
15 for --

16 MS. D'ARRIGO: -- an email for comments,
17 and the facilitator here said we could email our
18 comments in. And I'm reaffirming that we would love
19 to be able to email our comments in, and we would like
20 an email address.

21 MR. MUSSATTI: We'll get you one.

22 Question No. 7, "Are there any
23 unintended" -- didn't we just do that? Eight. I'm
24 sorry.

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1 MS. MAUPIN: Excuse me. We just noticed
2 that Larry Camper had a comment on No. 6, before we
3 go to 7.

4 MR. MUSSATTI: We've already talked about
5 that.

6 MS. MAUPIN: Oh, okay.

7 MR. MUSSATTI: When we get one, we're going
8 to circle back and pick Larry up. I was hoping he was
9 online to hear that. We've acknowledged that --

10 MS. MAUPIN: Okay.

11 MR. MUSSATTI: -- he tried before
12 desperately to raise his hand, but nobody saw him.

13 MS. MAUPIN: Okay. Great. I just wanted
14 to make sure.

15 MR. MUSSATTI: Okay. Larry, hang on.

16 No. 8, "What analytical methods/tools
17 should be used to assess the risk of disposing very
18 low-level waste at licensed low-level waste disposal
19 facilities or RCRA Subtitle C and D facilities; i.e.,
20 generic or site-specific?"

21 And, please.

22 MR. SHRUM: Dan Shrum with
23 EnergySolutions.

24 The only thing I would like -- I've got

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1 kind of a cold, so maybe that has something to do with
2 it. For this specific question, I would like you, as
3 you go through your rulemaking, to limit the analysis
4 to only packages as received, as opposed to as averaged
5 over the entire facility. So, treat it the same way
6 the Part 61 packages are received today, A, B, or C.

7 And so, by package, not by averaging over the entire
8 facility.

9 MR. MUSSATTI: Okay. That's a good point.

10 Anybody else?

11 (No response.)

12 Is there anybody on the phone?

13 OPERATOR: Yes.

14 Marvin Lewis, your line is open.

15 MR. LEWIS: Thank you. Another bite of
16 the apple.

17 Look, this unintended -- are we still on
18 7 or have we gone to 8? I don't even know.

19 MR. MUSSATTI: We are No. 8 now, sir.

20 MR. LEWIS: Ah, all right. Well, then,
21 I'm out of order. I should be waiting at the end then.

22 Would you like me to do that?

23 MR. MUSSATTI: I'd invite you to talk now,
24 since we've got you on the phone.

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1 MR. LEWIS: Oh, okay. Look, what
2 analytical methods? Now this is the problem, and it's
3 not the method. It's not putting it down on paper.
4 It's not putting it into the computer. The problem
5 is that, at some point, the boss can come around and
6 tell a technician like Harold Hartman to put down a
7 certain number or to bubble up the hydrogen, or
8 whatever. And you don't get a representative number
9 representative of the actual system or problem, or
10 whatever. You just get something that's put down by
11 somebody because the boss told them to do it.

12 And I don't see anything in any of the
13 things that I've been attending. I don't see anything
14 out there in the field. The guidance goes around and
15 picks up samples. I have been the bench chemist for
16 many years who's done this analysis and who's watched
17 as his input to the computer is changed by other people
18 who I don't know.

19 MR. MUSSATTI: Okay. Thank you very much.

20 MR. LEWIS: And I just wanted to point that
21 out. It's very, very nice to have good analytical
22 methods, but that doesn't tell me that is really
23 representative.

24 Thank you.

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1 MR. MUSSATTI: Okay. Thank you very much.

2 What you've been discussing right here is what's called
3 an allegation. If this actually were to happen, that
4 would be something that you could report to the NRC.

5 The NRC would take that under consideration and they
6 would investigate to see if there was anything there
7 that was wrongdoing. And it sure sounded from your
8 scenario that that's what it was. So, we do have a
9 process in place for that, and I hope you're sensitive
10 to that.

11 MR. LEWIS: What makes you think I haven't
12 done all that?

13 MR. MUSSATTI: No, I remember you talking
14 that you had done all that, but there is a process in
15 place.

16 Thank you for --

17 MR. LEWIS: That process in place is
18 worthless. Thank you.

19 MR. MUSSATTI: Okay. We have a question
20 in the audience?

21 MR. VICKERS: Glen Vickers, nuclear power.

22 I think there are already some mature
23 methodologies out there for complying with 10 CFR
24 20.2002 and existing RCRA facilities. Now the RESRAD

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1 is a common industry code. Now perhaps there is an
2 opportunity to maybe come up with a Reg Guide or a NUREG
3 to make it a more standard process perhaps. I don't
4 know if there's an opportunity to do that. But, that
5 way, you would come up with a standard analysis
6 methodology, whether it be a state or federal facility.

7 MR. MAGETTE: Hi. This is Tom Magette.
8 I was going to make a similar comment.

9 I think you have tools. You're using tools
10 today. You have NUREGs. You have a new one that you're
11 working on to go with Part 61 that outlines appropriate
12 analytical methods.

13 I don't think there's a need for a change.

14 I think the tools should be similar to what you're
15 using today. Kind of like my previous comment in terms
16 of the standards for the system, in order for the system
17 to be robust, it has to have these components to it.

18 And so, I think from a tools perspective you have them.

19 You don't need new ones or different ones, nor do you
20 want to be prescriptive, "Use this model," right?
21 That's guidance. That's guidance space, is to make
22 sure that the tools meet a certain expectation, but
23 that's not a regulatory standard.

24 MR. MUSSATTI: Okay. Thank you.

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1 Nothing on the webinar?

2 Anybody online, on the phone line?

3 OPERATOR: Yes.

4 Larry Camper, your line is open.

5 MR. CAMPER: Thank you very much.

6 We're discussing No. 8 now, yes?

7 MR. MUSSATTI: Yes, sir.

8 MR. CAMPER: Okay. I tried to raise some
9 comments on 7 also, but seemed to be unsuccessful in
10 getting in.

11 So, let's focus upon No. 8 for a moment.

12 I agree with what Tom Magette just said.

13 Oh, I'm with Talisman International, Larry
14 Camper.

15 I agree with Mr. Magette's comment that
16 the existing methods and tools are acceptable. If I
17 look at the question, when it goes on to say "disposal
18 at RCRA C or D facilities, should it be generic or
19 site-specific?", my answer to that is it should be both.

20 If, for example, the NRC were to create
21 a VLLW category, presumably, that category would, then,
22 follow the same kind of analyses that have been in place
23 to establish the existing classes of waste in 61.55.

24 Rather, some component Class A waste could become,

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1 in theory, VLLW. And therefore, some concentration
2 values would be set forth in the regulation that would
3 allow disposal of these materials just as is the case
4 today for Class A waste.

5 With regards to site-specific, the ongoing
6 rulemaking that's being prepared by the staff and the
7 Commission contains an "or" provision. Waste may be
8 disposed of using the classification tables in Part
9 61 or through the use of a site-specific performance
10 assessment. That will not change. It should not
11 change.

12 And it's important to note that RCRA
13 facilities regulated by the states through EPA
14 delegated authority also have a requirement that the
15 operator contained, utilized a waste acceptance
16 criteria, a WAC. So, yes, reactive material going into
17 a RCRA facility must satisfy the waste acceptance
18 criteria. That is site-specific. That should not
19 change.

20 Thank you.

21 MR. MUSSATTI: Okay. Thank you, Larry.

22 Are there any other comments on Question
23 No. 8?

24 (No response.)

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1 Well, let's move on to 9 because, then,
2 we're going to move onto a little bit more organic of
3 a discussion here. Question 9, "How should economic
4 factors be considered in the Very Low-Level Waste
5 Scoping Study?" And I'm sure that we're going to have
6 some comments on that from somebody in the audience.

7 Yes, sir?

8 MR. VICKERS: Glen Vickers, nuclear power.

9 I think we had mentioned before
10 particularly the 20.2002 process is lengthy and quite
11 costly for licensees to perform. And so, a clear
12 compliance table would eliminate that unnecessary cost.

13 Thank you.

14 MR. MUSSATTI: Okay. Thank you.

15 Anybody else in the room?

16 (No response.)

17 On the webinar?

18 (No response.)

19 No?

20 Anybody on the phones?

21 OPERATOR: Yes.

22 Ms. Michetti, your line is open.

23 MS. MICHETTI: Well, I was on the phone
24 from Question 7. So, I don't know how that got delayed.

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1 But I do have concerns that low-level, very
2 low-level waste includes things that I have always
3 considered to be inappropriate, such as long-lived
4 isotopes. And I do think that long-lives isotopes need
5 to be taken out of very low-level waste. That includes
6 uranium, plutonium, some of the iodines, things that
7 harm people and are going to totally destroy our earth
8 and food supply and our ability to live, our food and
9 water, if it gets out.

10 MR. MUSSATTI: Okay. Thank you very much
11 for that.

12 All right. I'm going to add a 10th
13 question here. What I want to do is, in asking nine
14 very specific questions and trying to hold the answers
15 to nine very specific, tunnel-vision type of answers,
16 so that we can go through all of them, what we've lost
17 is the organic nature of this discussion.

18 The overall question, if you were to try
19 to condense all nine of these down to one thing, would
20 be, what should the NRC do to put together a very
21 low-level waste management program that will work?
22 And these are all the different aspects, the economic
23 of it, the unintended consequences. What are things
24 that we can do? What should be excluded? All of this.

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1 But let's just open up the floor to the question, what
2 should we do, and have that as a conversation, instead
3 of having these very narrow questions where we're afraid
4 to say, "I'm sorry, you're out of scope, but on the
5 next question you could answer that."

6 First of all, we should probably go back
7 to Larry, if Larry's available, because he had a comment
8 on No. 6, and I promised him we would start there.

9 Mr. Camper, are you available?

10 MR. CAMPER: Can you hear me?

11 MR. MUSSATTI: I can hear you.

12 MR. CAMPER: Okay. Very good. Thank
13 you.

14 I tried to get in several times and have
15 not been able to. So, please bear with me. I have
16 a couple of comments to make.

17 Regarding Question No. 6, I think it's
18 important to put on the table the fact that the
19 regulations in 40 CFR 264 through 270 are rather
20 extensive in nature. And those regulations would
21 continue to be brought to bear upon any VLLW category
22 that would be authorized for disposal in a RCRA
23 facility.

24 I think the NRC should coordinate

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1 extensively, however, with EPA because the EPA, several
2 years ago, actually conducted its own regulatory
3 initiative to create a category called low-activity
4 waste. They withdrew those actions for a number of
5 reasons, not the least of which was the changing of
6 Administrators at the EPA to coincide with our various
7 elections. But the staff has from time to time spoken
8 to the NRC about resurrecting that idea. So, I think
9 that a good coordination with EPA would be in order.

10 With regards to the question imposing
11 concentration limits, I think the answer is yes.
12 Clearly, concentration limits should be clearly
13 articulated if there is to be a category of VLLW. But,
14 with regard to treatment standards, I would agree with
15 some of the earlier comments that the treatment
16 standards are in place, well-established, and are
17 currently brought to bear for Class A waste. So, I
18 don't see the need for a new treatment standard there.

19 On Question 7, if I may, since I have the
20 floor, about the unintended consequences, one caller
21 earlier raised the question on a point about unintended
22 consequences to the industry. There would be
23 significant, potentially significant, unintended
24 consequences economically to the industry for the waste

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1 operators that currently operate commercial low-level
2 waste disposal facilities.

3 If you look at the EPRI data and other
4 analyses, you come to realize that a very large
5 percentage of Class A waste that is currently disposed
6 of in a Class A disposal facility could, in fact, be
7 disposed in a RCRA-type facility, a very large
8 percentage. The numbers vary, but I've read numbers
9 and seen numbers of analyses that range from 50 to 70
10 percent. So, the potential for an economic impact is
11 rather significant.

12 The economic factors, how should they be
13 considered? Obviously, NRC is concerned about safety,
14 based on risk- and performance based approaches.
15 However, that economic impact would need to be
16 articulated in any regulatory basis document in the
17 classical manner. And so, that's how that unintended
18 consequence would be articulated, explained to the
19 public.

20 I'm sorry, now what was the general
21 question you asked?

22 MR. MUSSATTI: My general question?

23 MR. CAMPER: Yes.

24 MR. MUSSATTI: Just basically

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1 incorporating all of the different levels here, what
2 should we be doing? What advice would you give us as
3 to how to put together this very low-level waste
4 program?

5 MR. CAMPER: Well, from my perspective,
6 if I may while I have the floor, for the longest time
7 we have, as an industry, disposed of, arguably, what
8 is called VLLW in this discussion via the 20.2002
9 process, via the process that's now in place in the
10 State of Texas. It's being disposed of safely.

11 But that process is case-by-case and it
12 involves an exemption. It strikes me as being a better
13 approach that, if there were to be a category of VLLW
14 that could be set forth in regulations and subjected
15 to the regulatory process, that individuals could
16 comment upon, express their concerns, and so forth,
17 that's a better course of action than continuing to
18 dispose of this lower-risk Class A waste through an
19 exemption process. Therefore, I personally advocate
20 the use of a rule rather than the existing process,
21 although it is certainly safe.

22 I think that if we are not, if the NRC is
23 not going to create a category, then the earlier
24 question about should guidance be enhanced, I should

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1 saythe answer to that, in my mind, is clearly yes.
2 And I think guidance, for example, as to how the industry
3 meets the requirements of 20.2002(a) through (d) should
4 be more carefully articulated, and especially (d) with
5 regards to how the dose assessment is to be conducted.

6 So, if rulemaking is not the ultimate
7 outcome, I don't think a no-action alternative is very
8 good, and certainly guidance would need to be enhanced.

9 Thank you.

10 MR. MUSSATTI: Thank you very much.

11 We've got a comment to be sent back to a
12 lady named Lisa who tried to get in earlier and was
13 not able to. And we told her that we would get to her
14 next on the phone lines, once Larry Camper is complete.

15 And I think you're about as complete as you're going
16 to get for a minute.

17 So, Operator, can we go to Lisa?

18 OPERATOR: Yes.

19 And, Lisa Edwards, your line is open.

20 MS. EDWARDS: Hi. This is Lisa Edwards.

21 Thank you for that.

22 I guess I'll kind of answer the last, more
23 general question as best I can. The NRC has expressed
24 interest in moving more toward a risk-informed and

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1 performance-based regulation, and a necessary part of
2 that conversation is proper characterization of the
3 hazard.

4 EPRI's role is to provide a sound technical
5 and independent analysis and research that addresses
6 these types of questions. And in an effort to
7 technically inform this discussion surrounding very
8 low-level waste, we undertook a couple of different
9 research projects on very low-level waste. That
10 research indicates that both operating and
11 decommissioning plants do, in fact, generate volumes
12 of radioactive waste, such as building rubble and
13 lightly contaminated soils, which are characterized
14 by much lower levels of activity than are typically
15 associated with the more common low-level waste
16 streams, such as resin or filters or even more highly
17 contaminated dry active waste which is composed of cloth
18 and metals and plastics.

19 So, when we looked at the waste itself and
20 saw that, in fact, there is this rather large volume
21 of waste that has these very low levels of activity,
22 we said, how else do other people handle this? So,
23 in recognition of the lower hazard that is presented
24 by this category of waste, that recognition we found

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1 was recognized both domestically and abroad. The IAEA
2 calls it out as a separate waste category. Many
3 countries around the world have recognized this waste
4 category and a most recent report we looked at did.
5 We looked at six different countries. The U.S. was
6 one of those six and was the only country that did not
7 have very low-level waste or was piloting very low-level
8 waste.

9 So, the category itself is recognized
10 around the world, and it is, in fact, recognized here
11 at home, just not called the same name. The 20.2002
12 exemption process and other Agreement State license
13 processes, more or less, apply this same concept.

14 So, when you look at a disposal system,
15 it's complex. It has to consider both the hazard and
16 the disposal requirement. And generally, what we see
17 done in any disposal situation is to consider and
18 characterize the hazard, then develop and impose
19 requirements that are suitable to that hazard.

20 So, what we did is we said, well, how have
21 other people looked and approached this hazard, and
22 do the RCRA disposal facilities in terms of very
23 low-level waste, how do they compare to the disposal
24 requirements that other countries have imposed on the

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1 waste streams that they call very low-level waste?
2 That analysis provides very useful insight in terms
3 of how other people grappling with the same question
4 have defined those requirements, and we used that
5 information along with traditional approaches that are
6 currently used in low-level waste facilities to develop
7 a generic technical basis for how one might go about
8 defining very low-level waste categories.

9 And it hinges on what is the hazard you're
10 trying to prevent. If you look at most countries, they
11 consider a dose limit. So, they look at the mixture
12 of radioisotopes that are present in the waste stream
13 and they provide limits for the resulting dose that
14 could be anticipated via various intrusion scenarios.

15 And we applied that same concept in our
16 technical approach. We didn't expect this approach
17 to be the all-defining definition of very low-level
18 waste. It, instead, was undertaken so as to offer an
19 example or a template of the considerations that we
20 thought were important to go into defining this waste
21 stream, and was really meant to be a starting basis
22 for others to improve upon.

23 So, I'm very glad that we're having this
24 conversation, and we hope that the technical work that

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1 we have done at the Electric Power Research Institute
2 helps inform this discussion.

3 Thank you.

4 MR. MUSSATTI: Thank you. That was very
5 informative.

6 Do we have anybody on the floor who is
7 looking to speak first?

8 MS. EDWARDS: That was all.

9 MR. MUSSATTI: My microphone is off?
10 Sorry about that.

11 Is there anybody on the floor that would
12 like to speak?

13 MR. MAGETTE: Hi. This is Tom Magette.
14 I'd like to address Question 10.

15 And I think the answer to that is that there
16 should be a rulemaking. I think you should define VLLW
17 by rule. That will help address some of these other
18 concerns. But I think it's important that you regulate
19 the waste stream and that you regulate the site.

20 And if you put it in a Part 61, and those
21 other components are inherently a part of that section
22 of the regulations -- you have the siting section.
23 You have these other issues addressed as to the extent
24 you have to deal with packaging or the extent you have

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1 to deal with the site stability. It's simply a lower
2 risk, so it would be a lower standard, but it would
3 be regulated, not done by exemption, and it would be
4 formal.

5 I think it's a mistake to permit large
6 volumes, millions of cubic feet kinds of volumes, to
7 go to a given site under 20.2002, even if the site is
8 appropriate, because it's simply not been analyzed in
9 a way that would adequately justify that. So, I think
10 you'll end up using some of the sites, but you should
11 have a regulatory basis for that. So, I would encourage
12 a rule.

13 I appreciate what we're doing today, and
14 I certainly echo what Lisa just said. It is very much
15 a useful conversation, and I appreciate the idea for
16 us to help formulate what a rule might look like.

17 My fear, my unintended consequence fear
18 is that, you know, I could spend the next 10 years of
19 my life standing at microphones talking about very
20 low-level waste, which I don't really want to do.

21 Part 61 has been a very good process. I
22 like the idea of the preliminary proposed rulemaking
23 language, but I don't want to see this taken to an
24 extreme. I don't want to see a technical basis next

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1 and, then, an Advance Notice of Public Rulemaking, and,
2 then, a proposed preliminary rule language and, then,
3 a proposed -- you know, really, I think we know an awful
4 lot here. We can learn a lot from the EPRI work. You
5 can learn a lot from what you've done for Part 61.
6 And if you agree, if you write a report here that says
7 that your inclination is to write a proposed rule, then
8 I would encourage you to write a proposed rule next.
9 Otherwise, I think we'll be tortured to death by the
10 process, not to be overly dramatic.

11 Thank you.

12 MR. MUSSATTI: Okay. We had one comment
13 that was on the webinar that we need to get to here.

14 MS. ACHTEN: The webinar comment is from
15 Earl Fordham on Questions No. 7 and 9. "The State of
16 Washington is concerned about continued economic
17 viability of the existing sites if very low-level waste
18 is diverted to other sites."

19 MR. MUSSATTI: Okay. If you're still on
20 the line there, Earl, thank you for that comment. We've
21 got people taking notes furiously at the head table
22 here.

23 Back in the room, is there anybody else
24 that would like to make a comment? Okay. Thank you.

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1 MR. DEMBEK: I have a followup question
2 for Earl. Hopefully, he's still online.

3 If we can get more specifics about the
4 economic viability issue, for instance, will the
5 disposal site be forced to go out of business or will
6 the disposal site be forced to raise the price for the
7 regular Class A material and the Class B and C material,
8 such that the utilities might not gain that much because
9 they're paying more for this material or they're paying
10 less for the other material? So, if it's possible,
11 if we can get more specific details on what the economic
12 concerns are, that would be helpful to us as we make
13 our decisions.

14 MR. MUSSATTI: Good point. That kind of
15 input would be very helpful.

16 Yes, please.

17 MS. D'ARRIGO: I think there should be some
18 kind of provision for the public to have the ability
19 to do independent monitoring to verify the
20 implementation of whatever results. At this point,
21 we're in a complete, in a position of complete, having
22 to have complete faith in the Nuclear Regulatory
23 Commission and, then, in the state regulators and, then,
24 in the industries to fulfill the commitments. And in

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1 order to enhance public confidence, it would be helpful
2 to have some kind of independent verification. And
3 that is an economic concern because I have in the past
4 tried to verify, to identify the levels that were being
5 cleared by the Department of Energy, for example, and
6 a multi-channel analyzer that can identify the specific
7 radionuclides, not just the counts per minute or the
8 millirems per hour, or whatever, is in the range of
9 \$15,000, or at least it was several years ago. So,
10 in order to be able to verify and enforce, I think there
11 needs to be -- it's time that provisions be made for
12 the public to have the ability to do independent
13 monitoring and verification.

14 MR. MUSSATTI: Okay. Sir?

15 MR. SHRUM: Dan Shrum with
16 EnergySolutions.

17 In 2007 I was given the opportunity to
18 address the ACRS on this specific issue and presented
19 some of the differences. Because, actually, we operate
20 a low-level cell. We operate a mixed-waste cell which
21 combines the RCRA rules with the NRC rules for low-level
22 waste.

23 And one of the things as you go through
24 this process, I agree with Tom, I think rulemaking is

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1 essential. This cannot be done with a guidance
2 document. It should be B, compatibility Category B.

3 But one of the things that concerns me is,
4 when you start to cross between what the NRC does and
5 what EPA does -- and we've got some EPA representatives
6 here, and I don't mean to speak for you -- but the EPA
7 is very prescriptive: you will put in a liner. You
8 will put in another liner. You will have three feet
9 of clay that's compacted to 10 to the minus 6. You
10 know, just making this stuff up, but that's what it
11 says. It's very, very prescriptive.

12 As you take what you do wherever you're
13 going to do it, be it in Part 61 or possibly Part 20,
14 of how you're going to take this material and either
15 remove it from license space or exempt it through a
16 specific process, and then, make sure that you
17 coordinate with these folks that like to have things
18 very, very, very prescriptive, they are not so much
19 into the modeling. They like all of the waste codes
20 and things like that. So, as you go through this
21 process, again, rulemaking will be essential. I would
22 prefer that you do it your way.

23 There's some performance objectives that
24 need to be met. We would prefer that as opposed to

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1 specific requirements. But just make sure that
2 coordination happens there. So, when you say, yes,
3 it can go to their facility, they say, yes, this can
4 come to one of our facilities because it can also meet
5 our prescriptive rules.

6 Okay.

7 MR. MUSSATTI: Okay. Yes, please.

8 MS. D'ARRIGO: I think another important
9 provision would be that the liability for this material,
10 this waste, remain with the generator, regardless of
11 where it is disposed.

12 MR. MUSSATTI: Okay. Is there anybody on
13 the phone that has a question?

14 OPERATOR: Yes.

15 Elizabeth Zimmer-Lloyd, your line is open.

16 MS. ZIMMER-LLOYD: Yes, I would like to
17 go back to Question No. 7, which leads up to the economic
18 factors, considering. Again, I agree with the others
19 about the law. I agree that something should be put
20 in place or written as a law that would require, as
21 she said, the generators of this material. I mean,
22 traditionally, it seems to have been passed on in
23 negative cost to the local municipality and surrounding
24 area where it may be put in place.

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1 And in the unintended consequence of a
2 leak, who's going to be responsible? And as far as
3 it being called management, I mean, once it's put in
4 place, who's managing it? Who's monitoring it? That
5 concerns me.

6 I live eight blocks from St. Clair River
7 and a mile and a half from Lake Huron. And I'm
8 surrounded by water here in Michigan. It just is a
9 concern of mine that, once it's put in place, it's just
10 going to sit there. It's not being monitored. Again,
11 these liners within 30 years aren't going to be too
12 protective from this potentially leaking into the water
13 that I drink and I give my grandchildren.

14 MR. MUSSATTI: Okay. Thank you very much.

15 Operator, we've got a comment from a guy
16 named Joe who says *1 on the phone isn't working, Joe
17 Weismann.

18 OPERATOR: Oh, yes, he's in queue. I have
19 his line now open.

20 MR. MUSSATTI: Perfect. Joe?

21 MR. WEISMANN: I'm sorry, this is Joe
22 Weismann. Did you want me to go now?

23 MR. MUSSATTI: Yes, please.

24 MR. WEISMANN: Oh, thank you very much.

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1 My apologies, I had to step away from the
2 call for a while. So, if I'm reiterating what others
3 have said, my apologies.

4 But, given the summary opportunity for this
5 call and for the public information session, I would
6 just like to kind of summarize some of our thoughts
7 about the NRC's activities and some of what our
8 recommendations would be, I would say.

9 So, we're not opposed to a rulemaking as
10 such for the NRC versus continuing with guidance, but
11 would urge the NRC to continue in the vein of what
12 they're doing for Part 61 and the movement toward
13 site-specific performance assessments, and treating
14 these sites for the performance that they do show.

15 Publishing concentrations as part of a rule
16 would be treating all sites as a one-size-fits-all
17 position. That is one thing that Part 61 tables back
18 from the eighties have shown. Although they're
19 protective, they don't necessarily represent what the
20 industry can perform for generators and for licensees.

21 So, we've learned a lot over the last 34
22 years. We're continuing to learn about our sites, and
23 that we would like the opportunity to continue to do
24 that through site-specific calculations and risk

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1 assessments. I think it would benefit industry, in
2 general. It would benefit licensees. And it would
3 ensure that the waste is going to the most appropriate
4 places.

5 How the NRC chooses to do that, we don't
6 really have an opinion. It's just we think that the
7 NRC is on a good regulatory path as far as learning
8 the processes that have gone on with the Part 61
9 rulemaking and what we've learned collectively as part
10 of 20.2002 over the last 15-20 years. So, there's a
11 lot of collective knowledge to be examined and to learn
12 from, but I think we're starting from a very good place
13 and there are opportunities for the NRC to make real
14 good movement here and at the same time be able to serve
15 the industry and generators in the way that they need
16 to be served.

17 So, thank you very much for your time.

18 MR. MUSSATTI: Thank you very much for that
19 comment.

20 Anybody else in the room?

21 (No response.)

22 On the phones?

23 OPERATOR: Yes.

24 Clint Miller, your line is open.

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1 MR. MILLER: Good morning. Clint Miller
2 from Pacific Gas and Electric Company.

3 My comments range on previous questions
4 about effects on the low-level waste Compacts and, also,
5 the tracking of this material. First of all, if you're
6 looking to manage something, you need to be able to
7 measure it. And really, we're talking actively now
8 with three programs, if you will, driven by the states.

9 The State of Tennessee has their Bulk Survey for
10 Release Program, which should really be called the Bulk
11 Survey for Alternative Disposal Program. The State
12 of Idaho, in concert with NRC, has a program at the
13 US Ecology site. It's been mentioned. And there's
14 the RCRA facility that WCS Texas operates in Andrews
15 County, which is a RCRA cell for the State.

16 There is already for low-level radioactive
17 waste, and commercial, a national database that tracks
18 the low-level waste disposal that's manifested.
19 That's done by the DOE, the Manifest Information
20 Management System, or MIMS. That system does not
21 track -- only collects data from the licensed low-level
22 waste disposal sites. It is not collecting any data
23 from Tennessee on Bulk Survey for Release disposal,
24 US Ecology Idaho, or the RCRA cell in Texas.

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1 So, it may be prudent in the Scoping Study
2 for NRC to assess and evaluate and get in touch with
3 DOE to say, you know, what additional funding would
4 DOE need to include the collection of data from the
5 alternate disposal sites and put that into MIMS? So,
6 that's comment one.

7 As far as impact to the Low-Level Waste
8 Compacts, the power plant in California, the Southwest
9 Compact, we've since 1980 had to submit export permits
10 to the Southwest Compact. The Tennessee program has
11 been running since the 1980s. Historically, the
12 Southwest Compact has never been interested in any
13 quantity of material that could meet that alternative
14 disposal in Tennessee.

15 The Compact does collect fees based on our
16 export permits, which have a projected disposal volume.

17 And so, as the advent of other alternative disposal
18 options came up, US Ecology up in Idaho at a RCRA cell
19 and the disposal of RCRA in Texas, as someone pointed
20 out, that really is sort of a diversion of material
21 that otherwise would have gone to a Class A disposal
22 site. And so, the Southwest Compact was interested
23 in knowing about those quantities, I believe to some
24 extent to know that they were still getting their

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1 revenue stream as far as the Compact.

2 So, anything that we would send that gets
3 diverted from what had been a Class A site to a RCRA
4 site, we will report those quantities to the Compact
5 to show them that we've paid sufficient funds for an
6 export permit to cover that material independent of
7 where it was disposed of.

8 But, again, there's sort of a line of
9 demarcation. The disposal material in the Tennessee
10 process has never been of interest to the Southwest
11 Compact. The higher-tier material, if you will, a
12 little more radioactive, at Idaho or Texas is at least
13 of interest to them at this point in time.

14 MR. MUSSATTI: Okay. Is that about it?

15 MR. MILLER: Yes. That's my input on that
16 you should reach out to the Compacts to see what their
17 interest is.

18 MR. MUSSATTI: Okay. I appreciate that.

19 We've got about 10 minutes left, and we've
20 got about three or five minutes of housekeeping to go
21 before we can let you go.

22 But we did have a Rich Janati who is on
23 the webinar and has been trying to get on the phone
24 line. And I'm wondering if --

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1 MR. JANATI: Yes. Can you heard me?

2 MR. MUSSATTI: I can hear you now.

3 MR. JANATI: Okay. Very good.

4 I have just a couple of general comments
5 that I would like to make at this point.

6 First of all, I think that is for the NRC.

7 The first thing you need to do is to provide a
8 justification of why there is a need for a new
9 classification of waste. I mean, this is a very good
10 meeting, but I really didn't see a lot of comments from
11 NRC staff on why we're even taking on this new
12 initiative, a justification such as, obviously, the
13 volume, expected volume from the decommissioning of
14 nuclear power plants and RDD events, high disposal cost,
15 Part 61 facilities, and impact on smaller licensees
16 or generators, things in that nature. That would have
17 to be explained very early on in the process.

18 My second comment has to do with
19 benchmarking with other countries who have already
20 implemented a very low-level waste classification
21 program, lessons learned.

22 The other comment, a third comment has to
23 do with economic viability of the existing disposal
24 system. And I raised this before. In order to do that,

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1 obviously, you really need to have some idea as to how
2 much this waste, of low-level waste, is going to be
3 classified as very low-level waste. And in order to
4 do that, obviously, you're probably going to have to
5 know what the concentration limits are going to be for
6 very low-level waste. So, some ideas as to a projection
7 as to what is going to be considered very low-level
8 waste. Otherwise, you're going to have a difficult
9 time with the economic impact on existing facilities.

10 A couple of other comments. My concern
11 is, from some of the comments that I heard from
12 individuals who attended the meeting on the phone,
13 obviously, it seems to me that there's a lack of
14 familiarity with the RCRA Type C landfill requirements,
15 as well as RCRA Type B. I mean, most people who are
16 in the radioactive waste business, they don't know much
17 about RCRA Type C and RCRA Type B requirements. So,
18 NRC, you really need to do some, require some
19 educational work here as well to describe what those
20 requirements are.

21 And finally, as far as the impact, again,
22 the economic impact, I would recommend that you talk
23 to the existing disposal facilities. And then,
24 obviously at some point in the future, some direct

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1 interactions with the Compact Commissions would be
2 highly recommended.

3 Thank you very much.

4 MR. MUSSATTI: Thank you. You have
5 successfully used up all of my wiggle room.

6 I'm going to turn the meeting over to Kellee
7 now, who's got a few more slides for us to go through.

8 And then, I'll give you a couple of quick reminders
9 for things. And then, we'll break for lunch.

10 And I guess next slide.

11 MS. JAMERSON: So, just a few final things.

12 As you know, the Scoping Study was noticed in The
13 Federal Register. Our comment period is 90 days and
14 will end on May 15th, 2018.

15 We are having a public meeting, this one
16 scheduled for today, and we have another scheduled for
17 March 23rd, which will be in Phoenix, Arizona. This
18 meeting will be announced on our public meeting notice
19 system. So, stay tuned for those details about how
20 you can participate.

21 Next slide.

22 Lastly, on how to provide comments, we do
23 have the designated federal rulemaking website, and
24 the docket ID for the Scoping Study is NRC-2018-0026.

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1 Comments are accepted there as well as via mail, also
2 referencing the docket number. The address is provided
3 on this slide as well as in The Federal Register notice.

4 And if you picked up an agenda at the sign-in table,
5 information is also located on the back of that.

6 To ensure that your comment is considered,
7 we ask that you formally submit all of your comments
8 through the methods that are provided in the FRN.
9 However, since we were not able to produce a resource
10 email inbox, we will accept your comments via email
11 per the contact information listed on the paper as well
12 as on the next slide. And we'll be sure that it's added
13 to the docket.

14 Again, the comment period will end on May
15 15th. This is where you can find additional
16 information about the Very Low-Level Waste Scoping
17 Study. There is a page dedicated for the very low-level
18 waste on the NRC's public website. You can contact
19 myself, Kellee Jamerson, or Mr. Maurice Heath. The
20 phone numbers are there.

21 Thank you. I'll turn it back over to Dan.

22 MR. MUSSATTI: Okay. Thank you.

23 We had promised to give you addresses for
24 you to be able to send in comments. There are three

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1 of them up on the board. Well, two of them here and
2 one on the previous slide. There's two actual email
3 addresses, one for Maurice and one for Kellee. And
4 the regulations.gov is an official site that collects
5 all of our comments for us. And if you go to the
6 NRC-2018-0026, you will go right to where you get a
7 hot link right there and you can put your comment in.

8 So, I think we have taken that off of the parking lot
9 and we can consider that done.

10 We've had a pretty informative morning.

11 MS. D'ARRIGO: So, can I just clarify?
12 You're saying that for the very low-level waste
13 comments, they can go to rulemaking.comments@nrc.gov
14 if the subject line has "NRC-2018-0026"?

15 MR. MUSSATTI: Yes.

16 MS. D'ARRIGO: Thank you.

17 MR. MUSSATTI: Yes.

18 MS. JAMERSON: No. That email inbox is
19 specifically for the greater than Class C and
20 transuranic waste. It does not accept comments for
21 the Very Low-Level Waste Scoping Study.

22 MS. D'ARRIGO: What email can be used for
23 that?

24 MS. JAMERSON: For the Very Low-Level

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1 Waste Scoping Study, use either myself or Maurice for
2 the contacts, the email addresses for very low-level
3 waste.

4 MS. D'ARRIGO: In order to submit official
5 comments? You will, then, provide them to the docket?

6 MS. JAMERSON: We will be sure that it's
7 placed on the docket.

8 MS. D'ARRIGO: Okay.

9 MR. MUSSATTI: Yes, I'm sorry about that.
10 I was making an assumption, and you're not supposed
11 to do that.

12 Okay. When you leave here to go to lunch,
13 remember to have your visitor badge visible the whole
14 time that you're in the building. This floor, the next
15 floor up inside the auditorium area, and the main floor
16 of the One Building, the building that you came in this
17 morning, you can move around on that freely without
18 having to be escorted. You cannot get anywhere further
19 than that guard station that's for the Two Building
20 over there by the cafeteria. To get passed that, you
21 would be going into where our gymnasium is and those
22 sorts of things or you would be heading to the elevator
23 bays, and both of those are kind of forbidden. So,
24 you have the main floor. You've got the Starbucks and

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1 our cafeteria and the little gift shop that's across
2 the hall that are available to you.

3 We're going to start exactly at one
4 o'clock, I hope, because we promised the folks that
5 have that as an important topic that they're going to
6 get their full two hours this afternoon to be able to
7 listen to it.

8 If you leave the building, remember that
9 you have to come in through security. But, if you do
10 leave the building, you can leave through the back door
11 and go out through the guard shack by where the cars
12 are. But factor in the additional time that you're
13 going to need to get back here for the meeting.

14 You can leave everything of yours in this
15 room here if you've got a laptop or a briefcase, or
16 something like that, and you don't want to drag it around
17 lunch. I stay here for the whole lunch period. So,
18 there won't be any time that this room will be
19 unattended. So, your stuff is safe in here with me.

20 And have a great lunch. I'll see you in
21 about an hour.

22 (Whereupon, the foregoing matter went off the record for lunch at 12:00 p.m.
23 and went back on the record at 1:00 p.m.)

24 MR. MUSSATTI: All right, welcome back.

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1 Did everyone have a good lunch? Oh, it's one of them
2 kind of crowds. Okay.

3 Just a few reminders before we start,
4 please silence your phones, ringers, anything like that
5 so that we do not bother each other.

6 And, please remember your manners while
7 talking, one person speaking at a time so that our
8 bedraggled person that is transcribing this can
9 actually get an accurate transcription of what we are
10 saying.

11 Again, what you say -- what you think you're
12 saying here may not be exactly what you said or what
13 we heard, so we encourage you to follow it up by sending
14 us a written version of what it is that you tried to
15 say.

16 All right, on the phones, I want to -- in
17 case there's anybody new, we have this thing on a web
18 line with the webinar. And, the webinar usually has
19 audio and -- attached to it so you can speak through
20 the computer.

21 We don't use that because it uses up so
22 much bandwidth and garbles everything. We encourage
23 you instead to use the telephone and dial into our number
24 there and make any of your comments by dealing with

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1 our operator, who, right now, her name is Carrie. And,
2 later on, we'll be back with Brandon after he's done
3 with a lunch break.

4 Grab a pencil, if you are needing the
5 telephone number to get into our call in line,
6 1-800-857-9840. And, the pass code that you will be
7 asked for is 4979456.

8 That way, you'll be watching on your
9 computer, but you'll be communicating with us through
10 the telephone which will be a much clearer signal for
11 us to be able to get.

12 And, if you want to get onto the phone
13 lines, I'm going to ask Carrie to explain how to do
14 that and then I'm going to add a few words at the end.

15 Carrie, could you explain how to get in
16 the queue to make comments?

17 OPERATOR: Yes, as a reminder to join the
18 queue, please press star one on your touch tone phone
19 and record your name when prompted.

20 Again, press star one, please check to be
21 sure that your line is unmuted and record your name
22 at the prompt.

23 MR. MUSSATTI: Okay. The key there is
24 press star one on your touch tone phone. We've had

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1 problems in the past, from what I understand, with some
2 people not necessarily at this conference who have been
3 desperately beating out star one on their computer on
4 the numeric keypad when they're trying to get their
5 telephone to understand that they are trying to get
6 into the queue. So, we want to make sure that that
7 is clear.

8 We want to get started right away and as
9 soon as I can find where Greg Suber is -- there he is,
10 I'd like to turn the meeting over to Greg.

11 He's the Deputy Director of the Division
12 for Decommissioning Uranium Recovery and Waste
13 Programs, 18 years of service.

14 MR. SUBER: All right, thank you.

15 First of all, I'd like to welcome you all
16 to the afternoon session. I appreciate you guys coming
17 out.

18 Apologize that I couldn't order up the same
19 kind of weather we had yesterday for today. It's a
20 little cooler, but hopefully, you guys enjoyed your
21 walk outside nonetheless.

22 First of all, I'd like to emphasize, once
23 again, that we appreciate your coming out and just state
24 that public engagement is really important to the NRC.

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1 And, this is the way we prove to our stakeholders that
2 we are open and that we are transparent.

3 So, we welcome your comments here. We
4 welcome a lively, respectful discussion. And, we also
5 just want to remind you that to formally submit your
6 comments, you do have to go through the mechanisms that
7 are included on the back of your agenda.

8 So, I would like, at this time, to welcome
9 to the microphone Ms. Cardelia Maupin.

10 MS. MAUPIN: Thank you, Greg, and good
11 afternoon.

12 Basically, we will start with the second
13 slide which is the purpose of the meeting. And,
14 basically, we, at the NRC have good -- principles of
15 good regulation that requires us to do our business
16 in an open manner that provides public -- is publically
17 and candidly transacted.

18 So, that's why we are here today... is to
19 ensure stakeholder participation and involvement as
20 we identify the various technical issues that we will
21 be looking at in the development of a regulatory basis
22 for the disposal of greater than Class C and transuranic
23 waste.

24 This supports NRC's openness strategies

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1 and also the cumulative effects of regulation
2 initiatives.

3 For those of you who might not be as
4 familiar with cumulative effects of regulation, or as
5 commonly referred to as CER, back in March of 2011,
6 the Commission directed the staff to make the rulemaking
7 process -- to make enhancements in the rulemaking
8 process that would include increased interaction with
9 external stakeholders throughout the rulemaking
10 process.

11 And, the development of a regulatory basis
12 is a part of that rulemaking process. And, that is
13 part of our openness strategies and why we are here
14 today.

15 Next slide, please?

16 As you look at this particular slide, it
17 basically outlines what happened with the Low-level
18 Waste Policy Act of 1980, which basically defined
19 radioactive waste not as -- not classified, this is
20 a unique way to define a substance as not, okay, not
21 classified as high-level radioactive waste,
22 transuranic waste, spent nuclear fuel or byproduct
23 material as defined in Section 11(e)(2) of the Atomic
24 Energy Act of 1954, as amended. And, that was done

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1 in 1980.

2 And then, in 1982, as a result of the
3 interests of stakeholders and a lot of things that were
4 going on in waste disposal at that time, the NRC
5 developed regulations in 1982, that what we see as Part
6 61.

7 And, Part 61 basically also provides the
8 definition of waste. As defined in Part 61, low-level
9 waste -- waste means low-level waste containing source,
10 special nuclear or byproduct material that are
11 acceptable for disposal in a land disposal facility.

12 And, this definition goes on to indicate
13 that low-level waste, it means, again, not classified
14 as high-level waste, transuranic waste, spent nuclear
15 fuel or byproduct material.

16 In addition, when we -- when the NRC
17 developed Part 61, its low-level waste regulations,
18 it came up with a waste classification system which
19 is basically reflected in this diagram where we have
20 waste that is divided into the classes of A, B or C.

21 And, it also provides for waste that is
22 greater than C which we are going to talk about more
23 today, and that's greater than Class C.

24 Greater than Class C waste is

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1 concentrations of radionuclides that, in itself, by
2 its own definition, is greater than that in Class C.

3 Okay, greater than Class C.

4 Next slide, please?

5 So, you might ask yourself, okay, why are
6 we here? Why now? Why is the NRC looking at greater
7 than Class C at this time and at the possibility of
8 even revising its Part 61 requirements to look at
9 potential inclusion of this waste within the Part 61
10 regulatory framework?

11 Well, this is all outlined in SECY-16-0094,
12 the title of which is "Historical and Current Issues
13 Related to the Disposal of Greater Than Class C
14 Low-Level Radioactive Waste."

15 Basically, in that document, the staff
16 discusses that the Waste Control Specialist of Texas
17 filed a petition or rulemaking with the State of Texas
18 requesting that they amend the Texas Administrative
19 Code to remove the prohibitions to the disposal of
20 greater than Class C and "greater than Class C-like
21 materials.

22 And, as a result of that petition for
23 rulemaking, the State of Texas came to the NRC to look
24 at whether or not they could do this with all the various

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1 technical, legal issues surrounding it.

2 And so, for the purpose of this paper that
3 the staff developed, greater than Class C was basically
4 looked at as those materials that was covered by the
5 Atomic Energy Act licensed activity, whereas, this,
6 new term "greater than Class C-like" waste is that
7 developed by the U.S. Department of Energy and is
8 generated or owned by them.

9 So, this paper that the staff came up with
10 basically focused on that within our sphere and, that
11 being, greater than Class C.

12 So, as a result, of course, when you send
13 the paper up to the Commission, the Commission gives
14 you a response back. And, that response back is what
15 we have as the Staff Requirements Memo, or SRM.

16 And, it basically directed the staff to
17 prepare a regulatory basis for the disposal of greater
18 than Class C through means other than geologic disposal,
19 including what we see presently in Part 61 called
20 near-surface disposal.

21 In addition, at present, there is no
22 definition of transuranic waste in Part 61. So, the
23 Commission also directed to staff to look at adding
24 a definition of this term to the Part 61 definitions

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1 in Section 61.2.

2 After which, they had initially told us
3 to complete this regulatory basis within six months
4 of the, which was at that time, the Part 61 rulemaking
5 activity.

6 However, subsequent to that, through
7 SRM-SECY-16-0106, the Commission gave us new direction
8 and indicated that we should complete this regulatory
9 basis within six months after publication of the Part
10 61 supplemental proposed rule.

11 As you know, this is a very complex topic,
12 legally, technically and policy wise. So, six months
13 is not a very long time to discuss all of the important
14 issues that are going to need to be considered in
15 developing a regulatory basis.

16 Once again, that brings us to why we are
17 here today. We, at the NRC, believe it is vitally
18 important to communicate with our stakeholders early
19 and often, early and often.

20 That way, we can get and understand all
21 the various issues associated with this particular
22 development of this particular regulatory basis.

23 Next slide, please?

24 So, in looking at the next steps, once the

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1 Part 61 supplemental proposed rule is done, we are to,
2 within six months, complete the regulatory basis. As
3 I said, that's a very short time to do all we need to
4 do. So, that's why we're talking to you today.

5 And, if the analysis in the regulatory
6 basis concludes that some or all of greater than Class
7 C is potentially suitable for near-surface disposal
8 as described in 10 CFR Part 61 and the Commission agrees,
9 then the staff would proceed with that box there, which
10 would be to develop a potential Part 61 rulemaking for
11 greater than Class C and transuranic waste disposal.

12 Are there any questions for me before I
13 turn it over to my colleague, Mr. Tim McCartin?

14 MS. D'ARRIGO: I just wondered if the six
15 month clock started ticking yet, complete 61
16 supplemental proposed rule? So, that's -- that hasn't
17 happened, right?

18 MS. MAUPIN: That's correct. That's why
19 I referred to early and often because that -- the
20 supplemental proposed rule has not been published as
21 of yet. So, that's why we are out speaking to you,
22 our stakeholders, early on this issue. It has not been
23 completed.

24 MS. D'ARRIGO: And that's going to be on

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1 the whole gamut of things that Part 61 is, not just
2 this greater than C piece?

3 MS. MAUPIN: It would not include this
4 Part -- it would not include the greater than Class
5 C piece. It would just include the piece that was
6 being -- preceded us.

7 Thank you, if no more questions, I'm going
8 to turn it over to Tim.

9 OPERATOR: On the phone line, we have Rob
10 Black.

11 MS. MAUPIN: Okay.

12 OPERATOR: Your line is open.

13 MR. MUSSATTI: Go ahead.

14 MR. BLACK: Sorry, I missed the question.
15 We don't have input right now.

16 MS. MAUPIN: All right, I'm turning it
17 over --

18 MR. MUSSATTI: Okay.

19 OPERATOR: Okay, next, we have Larry
20 Camper. Your line is open.

21 MR. MUSSATTI: Go ahead, Larry.

22 MR. CAMPER: Okay, can you hear me?

23 MR. MUSSATTI: Yes.

24 MR. CAMPER: Very good, thank you.

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1 Thank you, Cardelia.

2 Before I make my comment or question, I
3 want to thank the staff for the hard work you're doing
4 on this very important national issue that's been going
5 on now for 30-plus years.

6 The question that I have before we get into
7 the specific question is, I want to try to understand
8 just where we are in the process.

9 I'm a little bit perplexed at some of the
10 questions. Let me explain what I mean.

11 Cardelia, you referenced SECY-15-0094.
12 And, I would bring to our attention the attachment or
13 enclosure to that paper which was an extensive analysis
14 of the GTCC waste inventory in the United States today
15 bringing to bear the materials set forth in the
16 Department of Energy's EIS.

17 And so, it's a very extensive document.
18 But, it strikes me that some of the questions that we're
19 going to be discussing doesn't seem to take the benefit
20 of that analysis.

21 I mean, for example, the first question
22 asks what are the important radionuclides, et cetera?

23 But, yet, that very document, this Executive Summary
24 cited Section 2 and presented a summary of the DOE EIS

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1 and went on to say that this document is currently the
2 most comprehensive and detailed source of GTCC waste
3 types and inventories, disposal methods including
4 conceptual facility designs, on and on and on.

5 And then, that same summary cited certain
6 questions that weren't addressed within that staff
7 analysis.

8 And so, I'm curious in a general nature
9 as to how much that rather in depth good work by the
10 staff is being brought to bear now as you bring forth
11 the issue in this set of questions?

12 Thank you.

13 MS. MAUPIN: I will take it -- my first
14 cut at it and then I will turn it over.

15 I think some of it is based on what the
16 SRM said and the direction that we got from the
17 Commission in that SRM in looking at the paper.

18 But to -- I will now turn to my colleagues
19 who will talk more about the technical aspects.

20 MR. MCCARTIN: Good afternoon, I'm Tim
21 McCartin and, Larry, let me go through my presentation
22 and then, at the end, if that still doesn't answer your
23 question, you can bring it up again.

24 But, I hope to address in that -- in my

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1 presentation.

2 And, we're at this initial meeting and the
3 staff, in preparing for the meeting, we conducted some
4 simple technical analysis drawing upon information from
5 before as well as possibly packaging it a little
6 differently than was done before.

7 But, we certainly are aware of a lot of
8 work that's been done, especially recently, DOE
9 published their EIS for GTCC waste. And, we have relied
10 on that.

11 However, for today, what we were looking
12 to see is, before we go any further in developing a
13 regulatory basis, we want to understand the potential
14 hazards with disposal of GTCC waste.

15 And so, this presentation today is trying
16 to give you some information of how we've looked at
17 it and we're interested in hearing from people, because
18 before you proceed to suggest any changes to the
19 regulations, one would want to make sure you have a
20 good understanding of the hazards.

21 And, that's what we've done today. This
22 analysis we provided in the Federal Register Notice.

23 It was a hope that possibly this analysis that we did
24 would assist people in understanding why we asked the

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1 questions we did.

2 So, next slide?

3 First, you want to understand the
4 characteristics of the type of waste that you're
5 proposing to be disposed of. And, generally, GTCC
6 waste is characterized in three rather large bins, if
7 you will, waste streams.

8 One would be from primarily from commercial
9 reactors, that's activated metals. They are
10 components from a nuclear power plant.

11 Sealed sources primarily from medical and
12 university hospital uses.

13 And then, the other category which is a
14 variety of different sources that are greater than Class
15 C. And, I'll go into detail in the next few slides
16 of those -- of these three areas that we looked at.
17 They are the same three areas that are in DOE's EIS.

18 So, activated metals -- next slide?

19 As I said, these are mainly reactor
20 components is the most significant source. There's
21 two aspects to the radiation for activated metals.

22 So, there's certain atoms that can get
23 activated by the fact that they've been in a nuclear
24 reactor. Nickel in a metal, nickel-63 is an

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1 activation -- activated radionuclide. And, that's
2 where the name typically comes from.

3 But, we would not want to neglect the fact
4 that there is some surface contamination of these metal
5 components in a nuclear reactor. And, they include
6 other radionuclides such as transuranics.

7 And, I will point out here that I labeled
8 greater than Class C for activated metal, sealed sources
9 and other wastes.

10 We do not have in this analysis a separate
11 category for transuranic waste.

12 Now, there are transuranic radionuclides
13 in some of these waste streams. They may not be at
14 the level of concentrations that would classify them
15 as transuranic waste, but we believe it allows one to
16 understand the concern with disposing of transuranic
17 wastes.

18 And so, that's why there isn't a separate
19 category that you'll see in my presentation for
20 transuranic waste.

21 There's also -- and, in this activated
22 metal source term, there is long-lived radionuclides
23 as well as short-term. The short-term tend to generate
24 more heat. And so, that's another aspect of this

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1 greater than Class C waste that typically is not
2 considered in low-level waste disposal, heat
3 generation.

4 Next slide?

5 Sealed sources, as I said, are typically
6 due to medical applications and they can be short-lived,
7 cesium-137 is a fairly large amount of curies that are
8 present in the source terms that DOE included in its
9 EIS.

10 There's also others that include
11 transuranic radionuclides, including plutonium
12 isotopes.

13 Plutonium-239, in particular, is a fissile
14 material and, with that, depending on the quantity,
15 the configuration, it raises potential concerns with
16 respect to the potential for criticality.

17 Because it's a fissile material, it also,
18 depending on the amounts, there's certain security
19 requirements that NRC has for these types of materials.

20 Additionally, sealed sources can generate
21 a fair amount of heat.

22 Next slide?

23 The other category is, you know, I hate
24 to say, well, it's a variety of different sources.

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1 DOE noted a couple potential sources for the future.

2 One, if there was a decision to exhume the
3 West Valley site, there could be some other -- it would
4 be classified as this other waste, some of that.

5 Also, molybdenum-99 production, a
6 radioisotope used in medical field procedures. There
7 is waste from that, that would be also included as other
8 waste.

9 Certainly, the molybdenum-99 production
10 has a transuranic radionuclide that's fissile
11 plutonium-239 in it.

12 So, you can see there's a variety of
13 different aspects to each one of these.

14 Next slide?

15 And so, when we look at this spectrum of
16 potential waste that would be disposed, there's the
17 thermal output.

18 Some of these waste sources, depending on
19 the amount that's disposed of, could generate a fair
20 amount of heat.

21 Also, the same radiation that generates
22 the heat can also cause radiolysis and hydrogen gas
23 generation. Is that an issue? Right now, it's
24 something to at least look at.

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1 The fissile material, as I mentioned, and
2 certainly, you always want to be aware of -- you might
3 have short-lived radionuclides but what do they decay
4 into?

5 And, if they decay into a long-lived
6 nuclide, what's the overall impact of that sequence?

7 And so, with that as a backdrop, I will
8 go to the results, but don't go to the slide -- that
9 slide yet.

10 These were simple analyses we did to help
11 us better understand the problem. We are not endorsing
12 any particular design, or site, it's a way to help us
13 better understand the problem.

14 And so, with that, let me go to the results
15 side. Yes.

16 And, although there's a lot of stuff up
17 there, let me point to a few things that I think are
18 the message -- the takeaway message that I'd like to
19 convey today, on the far left-hand side, -- are a number
20 of different potential hazards.

21 You can see the thermal aspect, the gas
22 generation, a dose to the off-site, the intruder. And
23 so, you can see there's a number of things you need
24 to consider when you're disposing of this type of

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1 material.

2 You can see the three categories. There's
3 also under each category, there's two different time
4 frames, 500 years and 5,000 years. Part of that, in
5 our analysis, we were trying to look at, you know, what
6 happens over the long time?

7 As you can see in terms of the thermal part,
8 clearly, most of the thermal effect is gone after the
9 500 years. It's there early on, as one would expect.
10 But, it dies off over time.

11 You can also see in that middle set of
12 columns for sealed sources, there's a lot of transuranic
13 radionuclides there.

14 And so, you can see that's one of the
15 reasons -- well, we didn't need to have a separate
16 transuranic column, you can see, it does show up. So,
17 disposal of transuranic radionuclides is going to need
18 to consider a number of these hazards.

19 You can see the bottom two rows, the first
20 one is intruder dose with respect to shallow disposal.

21 The bottom most is intruder dose with respect to deeper
22 than shallow. And, you can see, it made an impact.

23 And so, what this slide is trying to convey,
24 and clearly, the assumptions we made about, well, how

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1 much of it did you have there? In general, for each
2 one of these sources, we included approximately 400
3 cubic meters of waste. And so, we kept them about all
4 the same just to -- so, it was a fair benchmark between
5 the two.

6 But, you can see, there's a number of things
7 to consider and that's up to the particular site design,
8 the site. It could vary considerably, but, I think
9 what this shows to us as we go forward, there's a number
10 of hazards that need to be considered.

11 One thing I would not want anyone to take
12 away from this slide is, oh, we've identified the
13 important radionuclides. These showed up in our
14 analysis, it's very dependent on our assumptions.

15 But, it shows the importance of doing an
16 analysis to identify what's important for your
17 particular site, the volumes that you're going to
18 dispose of, the design you have. And, that's all this
19 should be used as.

20 We have not made any safety decisions on
21 this, but it's in the view of the technical staff doing
22 this, it's important to have a good understanding of
23 what you're disposing of and what impacts you need to
24 consider.

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1 As I said, the thermal aspect, if you didn't
2 account for it, would your engineered -- would your
3 waste form -- would your waste package degrade faster
4 because you didn't consider the heat aspect?

5 And so, that's the takeaway from this is
6 that we believe we've tried to identify the potential
7 hazards. Now, we'd like to hear from the public. You
8 might have different views on this and that's why we're
9 here.

10 But that -- and, that's why we provided
11 this analysis. You can see, as Greg said, this is a
12 complex issue. And, there's a number of facets to this
13 problem.

14 And, with that, I will go to the questions.

15 MR. MUSSATTI: Okay, we have three
16 questions that were posed in the Federal Register Notice
17 and we're going to spend about 15 minutes of each of
18 them we did before.

19 And, at the end of that, we'll get a sense
20 of where we are. And, if we can --

21 MR. MCCARTIN: Excuse me, Dan, we would
22 prefer you just read the three questions and let the
23 discussion flow from there. And, we're not as --

24 MR. MUSSATTI: But expand with the

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1 others --

2 MR. MCCARTIN: -- I know with the nine,
3 it was a little more, but we think we can just hear
4 from the public after.

5 MR. MUSSATTI: I stand corrected.

6 Well, the three questions are, for anybody
7 that can't see them, what are the important
8 radionuclides that need to be considered for the
9 disposal of the GTCC and transuranic wastes?

10 How might GTCC and transuranic wastes
11 affect the safety and security of a disposal facility
12 during operations? In other words, pre-closure
13 period?

14 And, how might GTCC and transuranic wastes
15 affect disposal facility design for post-closure safety
16 including protection of an inadvertent intruder?

17 And, we've got somebody at the microphone
18 already. Go ahead.

19 MR. MAGETTE: Surprise. I'm Tom Magette
20 with Talisman International.

21 I really appreciate the difficulty of what
22 you're trying to deal with here as Cardelia pointed
23 out. This is a waste stream that's been always defined
24 by what it's not.

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1 And so, what I'm hoping is that ultimately
2 through this process, you'll get to a place where we
3 actually define the waste stream.

4 There's a little bit about this that seems
5 still like trying to define it a little bit less than
6 what it's not, but, there's still kind of a "what it's
7 not" element to this.

8 Like, to the first question, I mean, you
9 ask for us to identify radionuclides. I mean, kind
10 of a first order of reading of a GTCC nuclide is they
11 are in the tables in 61.55, except in greater
12 concentration than what's in the tables because you're
13 defining it by Class C, except exceeding the
14 concentration limits that currently apply to Class C.

15 So, there's kind of a bounding there and,
16 I think part of this would be helped by losing the GTCC
17 terminology and losing the transuranic waste
18 terminology. Okay?

19 Because, I mean, you have a transuranic
20 waste definition in legislation which may be
21 complicating your lives a little bit. And, it's pretty
22 simple, I think, given that it's driven by atomic
23 numbers greater than 92, but that's not really what
24 you're talking about here.

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1 You're really talking about defining a
2 waste stream that you need to understand in order to
3 protect the public from the hazard.

4 And, this may be one of those cases where
5 we should look harder at what's done internationally.

6 Right? So, it's not -- it shouldn't be just GTCC.
7 So, you don't have to have the table in your hand to
8 know what you're talking about.

9 And, it shouldn't just be atomic number
10 92 or higher, it should be an intermediate waste stream
11 so that there's nothing left out once you finish this
12 exercise other than, and it won't be left out either,
13 would be defense high-level waste and at least spent
14 nuclear fuel.

15 And, below that will be low-level
16 radioactive waste, not including GTCC, but A, B, C and
17 hopefully Class V as well.

18 But, you'll capture everything in some sort
19 of category. And, I think, you know, the terminology
20 is getting in the way of doing that. So, that's one
21 broad thought.

22 Another is that you have done some work
23 and you've generated this table which is nice. DOE
24 has prepared an EIS that took a long time.

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1 And so, I think we have a good opening
2 position. And so, I appreciate the opportunity for
3 us to provide more specific comment here, but what I
4 would really like to see is that that gets us to some
5 sort of proposed technical basis more quickly.

6 So, that we can kind of put the cards on
7 the table. Because, I mean, I think we've had enough
8 years talking about what might it be to get straight
9 to something that looks like a technical basis that
10 leads to a proposed rule.

11 Because, we've got a lot of work, you've
12 done a lot of work, DOE's done a lot of work to
13 potentially define this problem.

14 So, I would say, we need to define this
15 as an intermediate waste. We need to stop talking about
16 nuclides as compared to the tables in 61.55 and we need
17 to publish specifically for proposed technical comment,
18 kind of a combination between what you've done and what
19 DOE has done.

20 MR. MUSSATTI: Thank you.

21 Is there anybody else in the room for
22 comment?

23 MR. VICKERS: Glen Vickers.

24 Just a few observations. As was noted,

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1 the DOE has done a lot of work and already made some
2 initial recommendations for either surface disposal,
3 shallow bore holes, et cetera. So, a lot of good work
4 is done.

5 Here's just a couple observations from
6 where I see from nuclear power's perspective.

7 First of all, we know our waste streams
8 very well in nuclear power, they'd be activated metals
9 from activated analysis or the TRUs.

10 Surface contaminates, we might have on
11 activated metals, would likely be far less than 10
12 nanocuries per gram on a heavy piece of activated metal.

13 Now, if you had a low density waste like
14 a light-weight glass fiber filter paper, maybe you get
15 enough to exceed 10 nanocuries per gram transuranics.

16 But, those surface contaminants would not likely be
17 significant compared to the amount of curies.

18 Pretty much all your plants in the U.S.
19 already store dry fuel, you know, in the interim fuel
20 storage containers and concrete vaults on pads. So,
21 we have good feedback on watts in containers, thermal
22 generation.

23 And also, we have -- also have been licensed
24 for storing activated metals in similar containers,

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1 we call them non-fuel waste storage containers.

2 And so, there's good data for watts, et
3 cetera.

4 We may find that we have very few waste
5 forms that really would need any subsurface cooling,
6 I would think.

7 As far as driving nuclides that I kind of
8 see in nuclear power, I think they were already
9 identified in the DOE paper, nickel-63, transuranics
10 greater than five-year half-life and those kinds of
11 things.

12 But, I would think things like reactor
13 vessels, activated metals, those could easily be done
14 in concrete cells or vaults above ground and not need,
15 you know, something subsurface like WIPP or something.

16 And, I would even imagine that a good amount
17 of the source term in WIPP is that low density waste
18 that, while it's greater than 10 nanocuries per gram
19 or something, it may not really necessarily need that
20 deep geological repository and could be stored more
21 efficiently elsewhere.

22 Thank you.

23 MR. MUSSATTI: Okay, have we got anybody
24 on the phone?

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1 OPERATOR: Yes, Larry Camper, your line
2 is open.

3 MR. CAMPER: Thank you very much.

4 Tim, thank you for your presentation and
5 your comments. These were eloquent as ever.

6 However, I remain concerned about where
7 we are. If I go back to the enclosure two to
8 SECY-15-0094, if I look back at a paper presented by
9 Terrence Bromfield and others at the WM Symposium
10 conference, if I look at the EIS prepared by the
11 Department of Energy, I think we have a good
12 understanding of what constitutes GTCC waste.

13 And, I think we also have a good
14 understanding of what constitutes TRU waste.

15 What I'm concerned about is GTCC is an issue
16 that we've been wrestling with since 1985 in policy
17 space.

18 And, when it comes to TRU waste in excess
19 of 100 nanocuries per gram commercial, we don't have
20 a disposal pathway laid out.

21 It's for intensive purposes more than
22 waste.

23 And then, you stop and think the GTCC and
24 TRU waste are commingled and according to the Department

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1 of Energy, as much as 87 percent of the inventory is
2 commingled.

3 What I'm concerned about is urgency.
4 Where are we? And, I want to make sure we maximize
5 all the work that's been done thus far and not repeat
6 some of the same questions that I would argue the staff
7 has already addressed and the Department of Energy has
8 already addressed.

9 And then, rather, I would suggest that we
10 might take a look at the Executive Summary of Enclosure
11 2 and look at those issues that the staff identified
12 as not being addressed in that paper as to what is
13 outstanding.

14 I mean, I could sit here and read it to
15 you, but you can look at it for yourself. Just go to
16 the Executive Summary of Enclosure 2, it's right there.

17 To me, those are the questions that we
18 should be focused upon now. While, I understand the
19 value of asking these kinds of questions and making
20 the general public aware, that's good, but that's not
21 moving us down the goal field to solve a problem that
22 desperately needs to be solved, in my opinion.

23 So, I think that we can maximize our
24 efficiency in the process by better focusing upon some

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1 of these outstanding questions that haven't already
2 been addressed.

3 But, I appreciate the explanation and your
4 comments were really thorough and I thank you for that.

5 That's all.

6 MR. MCCARTIN: Right. And, I appreciate
7 that, Larry. We certainly are going to make use of
8 all the previous work. And we do not believe we're
9 reinventing past analyses. We may be packaging it a
10 little differently, but it's all part of what
11 we're -- and, as Cardelia said, this is a six month
12 time frame we're going to move fairly quickly.

13 But, the first step was, we want to make
14 sure that we have a good understanding of the types
15 of waste streams and radionuclides we're talking about
16 before we go to the Commission with any recommendation,
17 no matter what it be.

18 And, this is that first step, but we
19 certainly will -- are aware of the previous work. We
20 will make use of it and, you know, I believe it's as
21 much we are packaging it in a certain way and that may
22 change with time as we learn more.

23 But, it's -- yes, and Greg wants to say
24 something.

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1 MR. SUBER: Yes, this is Gregory Suber.

2 Yes, and Larry, I'd also thank you for that
3 chronology. But, I'd like to pull your attention to
4 the fact that, even though those papers were vetted
5 and released publically, that there was never a formal
6 opportunity for anyone in the public to respond to the
7 NRC with -- or concur that we have captured the universe
8 of things that are out there or either to introduce
9 anything that we could possibly have missed.

10 And so, the real goal behind this effort
11 is to say, hey, this is the universe of things that
12 we have seen and are considering. We're doing a scoping
13 study to make sure that we have captured everything.

14 And, this forum is the first opportunity
15 to make sure that we got that right. And, is that
16 correct, Tim?

17 (NO AUDIBLE RESPONSE)

18 MR. SUBER: Okay.

19 MR. MUSSATTI: Let the record show that
20 Tim was nodding yes.

21 MR. MCCARTIN: Oh, yes.

22 MS. D'ARRIGO: Okay, so I'm a little
23 confused. If this is scoping like Greg just said for
24 greater than C, just out of curiosity then, why can

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1 we comment to the regulations -- to the rulemaking.gov.

2 I was just told, they can't comment on rulemaking.gov
3 on the very low-level waste because it's not a
4 rulemaking.

5 MS. MAUPIN: This one is in rulemaking,
6 because when the Commission directed us to look at
7 developing a regulatory basis, it was inserted into
8 our "rulemaking tracking system."

9 So, it was added on the docket as that,
10 budgeted as that under rulemaking.

11 Whereas, the other issue has not had that
12 level of attention by the Commission as of yet.

13 So, we have all those vehicles that
14 we -- four vehicles with the ways you can comment are
15 consistent with how a rulemaking process is handled.

16 So, you can email us, fax us, write us,
17 you can even hand-deliver it, if you want. So --

18 MS. D'ARRIGO: Okay.

19 MS. MAUPIN: Okay?

20 MS. D'ARRIGO: And then, one more
21 clarification then.

22 So, I understand that the NRC is funded
23 usually by user fees. So, who's paying for these
24 rulemakings and for the exploration of very low-level

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1 waste?

2 MS. MAUPIN: In responding to that, what
3 we have is, we have certain resources that are given
4 to us by Congress that are -- that is outside of the
5 fee process.

6 And, this activity is not on the fee system
7 or the fee process.

8 MR. MUSSATTI: Do we have other questions
9 or comments from the room?

10 Yes, sir?

11 MR. TONKAY: Doug Tonkay, U.S. Department
12 of Energy.

13 I just wanted to make a comment about I
14 believe you said you were going to be updating the
15 transuranic waste definition or you were
16 including -- looking at including that in Part 61.

17 And, picking up on what a couple of the
18 others have said, I wanted you to be aware of, there
19 is a legal definition in the WIPP Land Withdrawal Act
20 for transuranic waste.

21 And, it may be, as I recall, a bit different
22 than NRC's definition because -- and we use that in
23 DOE because it also includes a half-life of greater
24 than 20 years.

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1 And so, I would hope that we could come
2 together on that definition.

3 And, the second thing was, I think on slide
4 12, I would --

5 MS. MAUPIN: If I could just jump in to
6 that. In our SECY-15-0094 in Enclosure 3, we have an
7 extensive discussion on the definition and this
8 conflict of definition.

9 So, that was one of the reasons why the
10 Commission directed us to, hey, we need to come to some
11 kind of agreement on this definition and have one in
12 Part 61. So, it was included in that paper.

13 MR. TONKAY: And then, the second question
14 or comment was on the slide 12 that you had where you
15 had, I believe, the impacts in 5,000 years, it showed
16 plutonium-238. Is that a typo? Should it have been
17 plutonium-239?

18 MR. MUSSATTI: It is 239 up there.

19 MR. TONKAY: Okay, it looked like 8.

20 So, thank you.

21 MR. MUSSATTI: It's 239.

22 MR. MCKENNEY: All right, the print's too
23 small, it's too much of an eye test. This is Chris
24 McKenney.

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1 (OFF MICROPHONE COMMENTS)

2 MR. MCKENNEY: Really? Maybe it's too
3 small for us.

4 (OFF MICROPHONE COMMENTS)

5 MR. MUSSATTI: Oh, yes, that's in the --

6 (OFF MICROPHONE COMMENTS)

7 MR. MUSSATTI: We need you on the
8 microphone if you're making a comment.

9 MR. MCCARTIN: I will double check that,
10 I believe you're right that that -- in that column.

11 MR. TONKAY: As I recall, the half-life
12 of plutonium-238 it's under a 100 years, so that would
13 represent over 50 half-lives if that -- and it would
14 have to be a very high concentration to be --

15 MR. MCCARTIN: Right. It should have been
16 239 in that last column, yes.

17 MR. MUSSATTI: Okay, have we got anybody
18 on the phone lines that would like to speak?

19 OPERATOR: I'm currently showing no
20 comments on the phone line at this time.

21 MR. MUSSATTI: Okay. And, nothing on the
22 webinar. Anything else in the room?

23 MR. VICKERS: Glen Vickers, just one more
24 comment.

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1 You know, out of -- outside of arbitrarily
2 driving things, coming up with perhaps a watt density
3 that would require, you know, subsurface cooling, watts
4 per cubic foot or something like that.

5 That would be another thing that licensees
6 could use to assess their materials or help you better
7 decide whether it would need subsurface cooling or could
8 be above ground in that.

9 That's all.

10 MR. MCKENNEY: And, that is, again, we have
11 the material from a number of analyses over the years.

12 But now, every analysis is fit for purpose.

13 It is what are you actually analyzing and what is the
14 answer?

15 And so, you know, we're trying to ask to
16 make sure that there isn't data out there, there hasn't
17 been too conservative of assumptions of what might be
18 on a type of waste stream or anything like that.

19 Then it's what's out there because it may
20 have been fine to have that conservative assumption
21 in a paper several years ago on what radionuclides are
22 present.

23 But, when you keep -- when you're refining
24 that or even if we could look into the future if that

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1 was site specific analyses by the waste sites, they
2 would, you know, want to know a more realistic value
3 than a conservative value for what is the -- what are
4 these radionuclides on these specific types of
5 equipment?

6 To the degree we can, to the degree we're
7 not asking for people to go out and reanalyze these
8 things and do worker dose for this particular
9 enterprise.

10 But, if people have sources of data on that
11 to say, yes, this was used in this analysis, that's
12 a bit conservative but it, you know, it might fit for
13 that -- the question they were analyzing at the time.

14 And, but, for this one, you should take
15 into account it's a bit conservative. And, that may,
16 you know, influence the overall decisions because, if
17 you're too conservative in some places in these
18 analyses, that can just compound and then you're making
19 the decision -- a risk decision on something that really
20 isn't part of the analysis -- shouldn't be part of the
21 analysis.

22 MR. MCCARTIN: Yes, and if I could clarify,
23 and it's possible I mean, it's always dangerous to put
24 a table like Table 12 up.

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1 It wasn't an intent to say, oh, these are
2 issues that we're worried about necessarily. But, they
3 are issues that need to be considered. And, it may
4 be a very, very simple consideration to say, gee, I
5 don't have a thermal problem.

6 But, because, once again, for all of these,
7 if you're disposing of 10 cubic meters versus a 1,000
8 cubic meters, it's a different world. And, that's part
9 of the assumptions of this analysis.

10 But, whoever is looking to dispose of
11 something, needs to consider these things. Some may
12 be a very simple analysis to show it's not an issue,
13 others may take a lot more effort.

14 And, it really depends on the quantities
15 that should not be overlooked here. And, that's part
16 of the --

17 So, I don't want to, does someone have to
18 do a detailed analysis for all these? I was not trying
19 to imply that, that's for sure.

20 MR. MUSSATTI: Do you have a comment?

21 MS. D'ARRIGO: I have a question, it's
22 Diane D'Arrigo, Nuclear Information and Resource
23 Service.

24 Could somebody describe to me how the

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1 federal government and I guess the State of Texas right
2 now, I don't know whether it would include Utah as well
3 or any of the other South Carolina, Washington, what's
4 before us?

5 We have the ongoing DOE EIS that's kind
6 of stringing out on greater than C. Now, we've got
7 a proposal, I guess, WCS wants to have Texas give them
8 permission to dispose of this waste. And so, NRC needs
9 to make a decision to advise the State of Texas on
10 whether or not they have the authority to permit WCS
11 to do this.

12 And then, you need to do possibly some kind
13 of rulemaking in order to -- I'm just trying to figure
14 out what's going on.

15 MS. MAUPIN: I'll speak from the Agreement
16 State and policy issue briefly. And, I will lean on
17 Ian to correct me if I say something that's not quite
18 right.

19 So, you have the low-level waste --

20 MS. D'ARRIGO: Who's Ian?

21 MS. MAUPIN: Oh, I'm sorry, our --

22 MS. D'ARRIGO: Are you WCS?

23 MS. MAUPIN: No, he's our attorney.

24 MS. D'ARRIGO: Oh, thank you.

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1 MS. MAUPIN: Okay. First off, I'm going
2 to try to make this as brief as possible.

3 First, you had the Low-level Waste Policy
4 Amendments Act that basically set out the
5 responsibilities of the States and the federal
6 government, in this case, for greater than Class C which
7 was designated to DOE, as I understand it.

8 So, you have a federal law that says that
9 greater than Class C basically is supposed to be a
10 federal responsibility and that facility, and there
11 is some confusion on it, is supposed to be regulated
12 by the NRC.

13 Now, okay, prior to the Low-level Waste
14 Policy Amendments Act we had some States that inherited
15 some low-level waste disposal facilities from the
16 federal government like South Carolina, which was
17 licensed under Part 20 with a lot of problems with that.

18 So, we came up with Part 61 and then, as
19 I said, that was around '82.

20 And then, after that, we came up with what
21 we call a way where States could decide if they only
22 wanted to regulate low-level waste to comply with the
23 requirements in the Low-level Waste Policy Amendments
24 Act.

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1 So, we came up with what we call a limited
2 agreement just for low-level waste disposal. And, that
3 was right after the Low-level Waste -- in between the
4 time of the Low-level Waste Policy Amendments Acts.

5 So, at that time, we thought a lot of States
6 were going to consider it. We came up with criteria
7 and everything, what an Agreement State program should
8 look like if they wanted that responsibility.

9 Okay, bring that around to present day,
10 we have a licensee who says -- who has said to an
11 Agreement State, we want you to take off your books,
12 your laws, that greater than Class C is prohibited.
13 That's a real -- that's a sticky wicket.

14 Because, now, we've got to look at, okay,
15 NRC, we don't have a clear program to say, hey, you
16 can do this, that we not established in Part 61 a greater
17 than Class C program. And, according to the law under
18 Section 274-74, if an Agreement State is going to have
19 a program, it's supposed to be adequate and it's
20 supposed to be compatible with the federal government.

21 So, that's why this is a very complex issue
22 because there are a lot of legal issues involved and
23 there are a lot of policy issues involved and there
24 are a lot of technical issues involved.

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1 And, layer on top of that, there's this
2 little provision in the Atomic Energy Act that said,
3 okay, certain hazards are such a level that they should
4 be reserved to the federal government.

5 And so, traditionally, that -- one of those
6 hazards has been identified as greater than Class C.

7 So now, we're looking at whether or not there are some
8 or all, based on the new technology that's being
9 applied, because, if you look at what the Waste Control
10 Specialist facility, it's not your normal like within
11 the 30 meter, you know, of the biosphere near-surface
12 disposal facility.

13 What was, you know, envisioned when Part
14 61, and at the time, Part 61 was being developed. So,
15 it's just a whole lot of technical, policy and legal
16 issues involved.

17 MS. D'ARRIGO: So, WCS has some State
18 licenses to dispose of federal waste and commercial
19 compact waste. So, and, as I understand what you said,
20 what came out of the earlier history is that the State
21 licensed 10 CFR 61 facilities could decide on a case
22 by case basis to accept some greater than C on a case
23 by case basis?

24 Because, I know Barnwell has done that.

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1 MS. MAUPIN: I guess the short answer is,
2 he's saying yes but you go back and look at the
3 compatibility designation, is the compatibility D.
4 And, that's something that would not necessarily be
5 compatible.

6 MS. D'ARRIGO: So, what can -- I mean, what
7 do you want to hear from public on this? Whether we
8 want you to proceed to allow greater than C to go to
9 10 CFR 61 facilities with sort of a similar question
10 to the depleted uranium, you know, pretending it's Class
11 A and letting that go into the sites if the generators
12 do their performance assessment and decide everything's
13 going to be an acceptable dose in a 1,000 or 10,000
14 years.

15 So now, you're looking at doing a similar
16 thing with greater than C.

17 MR. MCKENNEY: Currently, the Part 61, if
18 you go back and look at the -- back in the late '80s
19 there was a rulemaking related to high-level waste that
20 was looking at the definition of high-level waste.

21 And, was considering putting GTCC under
22 that definition. At the end of that rulemaking, it
23 was decided that instead of actually putting it there,
24 there was to be put a statement into Part 61 that it

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1 would be preferable for geologic disposal, but could
2 be done on a case by case basis under 61.

3 What we're trying to do now is, especially
4 with the State of Texas is question to us, is what
5 exactly is needed in that case by case basis? What
6 do we -- do we need to change Part 61 to actually
7 establish specific criteria for GTCC disposal? And,
8 are there, you know, and are there any other ancillary
9 issues related to that?

10 And, one of the biggest ancillary issues
11 is, can that be handed to the Agreement State or not
12 for large volumes of GTCC -- relative of the volume
13 of GTCC?

14 MS. D'ARRIGO: So, how does that dovetail
15 with what DOE's doing?

16 MR. MCKENNEY: Right behind you, they will
17 talk for DOE.

18 MS. KLICZEWSKI: Hi, this is Theresa
19 Kliczewski, U.S. Department of Energy, Office of
20 Environmental Management.

21 So, your question or your comment earlier
22 about the continuation of the EIS, I just wanted to
23 be clear, the final EIS for greater than Class C disposal
24 was published in 2016. So, that's done.

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1 What we have done recently is, in
2 accordance with EPAC to 2005, we have issued a report
3 to Congress on greater than Class C disposal.

4 The Department of Energy, as part of our
5 next step, will have to -- the legislation states to
6 await congressional action before making a final
7 determination.

8 So, the Department of Energy will be
9 issuing eventually at a TBD time frame a record of
10 decision, to be determined record of decision on greater
11 than Class C disposal.

12 So, I just wanted to clarify that because
13 of your comment earlier saying the continuation of the
14 EIS, that part is done. We did issue it, yes.

15 (OFF MICROPHONE COMMENTS)

16 MS. KLICZEWSKI: Correct, the record of
17 decision is TBD, but that is with the Department of
18 Energy.

19 MR. MUSSATTI: Okay, I'm going to pull this
20 conversation back to the topic of the day. We've
21 wandered off into the weeds and I let it go for a little
22 while hoping that it would come back on its own, but
23 it seems that those weeds are getting deeper the further
24 we go. And, we're into Commission space now, not into

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1 something that we can handle ourselves right here.

2 So, do we have any other comments related
3 to the three questions, to the exploration at hand?
4 In the room?

5 (NO RESPONSE)

6 MR. MUSSATTI: On the telephone line?

7 OPERATOR: We have on the phone Larry
8 Camper. Your line is open.

9 MR. MUSSATTI: Larry, good to hear from
10 you.

11 MR. CAMPER: Thank you, thank you very much
12 for the opportunity to comment. I appreciate, again,
13 all the hard work you're doing.

14 These are tough questions. Greg, I want
15 to go back a comment you made, if I might.

16 Regarding the fact that the Enclosure 2
17 to SECY-15-0094 was never a subject to public comment.

18 Perhaps it should be because the amount of analysis
19 that was done in that enclosure by the staff coupled
20 with the work that Terrence Bromfield and others did
21 to make a presentation at the WM Symposia represent
22 a tremendous amount of time and effort.

23 If the concern is that all that work was
24 never subject to public review or comment, I would

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1 suggest that it might be.

2 Because I think many of the questions that
3 are being asked here are, in fact, captured and embodied
4 in that staff work. And, it may be that the most
5 beneficial thing to do therefore is to offer an
6 opportunity for comment and perhaps convene a workshop
7 of industry experts and public participation and
8 awareness to address the outstanding issues that the
9 staff cited in the Executive Summary of that enclosure
10 that were not addressed within that particular body
11 of work.

12 So, that's something I would offer as
13 worthy of pondering.

14 Thank you.

15 MR. MUSSATTI: Thank you.

16 Is there anybody else on the phone?

17 OPERATOR: I am currently showing no
18 further comments on the phone line.

19 MR. MUSSATTI: Okay, thank you.

20 I don't see anything on the webinar
21 that -- where anyone's asking to comment.

22 Is there another comment from the room that
23 is on topic?

24 MR. VICKERS: Glen Vickers.

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1 One thing related to security. So, for
2 10 CFR 37, NRC wrote Enforcement Guidance Memorandum
3 14-001. I think that's for large items, greater than
4 so many kilograms absent certain waste types or robust
5 structures.

6 It provided an alternate set of controls
7 as to what's been Part 37. That would be something
8 to look at when you look at your security measures.

9 MR. MUSSATTI: Anybody else?

10 (NO RESPONSE)

11 MR. MUSSATTI: Do we need leadership and
12 guidance? Should we close it up?

13 MR. SUBER: Sure.

14 MR. MUSSATTI: Okay.

15 MR. SUBER: Once again, this is Gregory
16 Suber, the Acting Deputy Director of the Division of
17 Decommissioning Uranium Recovery and Waste programs.

18 If you can go to the last slide with the
19 information on it?

20 All right, so, first of all, thank you all
21 for your active participation in the discussion.

22 And, I would like to remind you again that
23 we appreciate your comments. We do have them
24 transcribed as we have transcribed this meeting. But,

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1 to have your comments formally submitted for
2 consideration, we do ask you to submit them to the
3 information you see here, either at regulations.gov.

4 For this particular meeting, you can submit it to -- by
5 email to rulemaking.comments@nrc.gov.

6 And, I believe we modified the handout.
7 Did we not? We modified the handout that is available
8 for you which will have the email addresses for
9 submitting comments for very low-level waste scoping
10 study along with the Docket Number that we would like
11 to have in the title line so that we can identify easily
12 those comments -- those emails as comments on that
13 particular topic.

14 And, with that, I thank you for coming and
15 have a good afternoon.

16 (Whereupon, the above-entitled matter went
17 off the record at 2:06 p.m.)

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