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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW)

176th MEETING

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THURSDAY,

FEBRUARY 15, 2007

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ROCKVILLE, MARYLAND

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The Advisory Committee met at the Nuclear  
Regulatory Commission, Two White Flint North,  
Room T-2B3, 11545 Rockville Pike, Rockville, Maryland,  
at 11:00 a.m., Michael T. Ryan, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

- MICHAEL T. RYAN Chairman
- ALLEN G. CROFF Vice Chairman
- JAMES H. CLARKE Member
- WILLIAM J. HINZE Member
- RUTH F. WEINER Member

ACNW STAFF PRESENT:

DEREK WIDMAYER, Designated Federal Official

1 ACNW STAFF PRESENT: (cont'd)

2 FRANK GILLESPIE

3 MICHAEL LEE

4 CHRISTOPHER BROWN

5 ANTONIO DIAS

6 NEIL COLEMAN

7 LATIF HAMDAN

8

9 ALSO PRESENT:

10 CHARLES MILLER

11 GEORGE PANGBURN

12 LARRY CAMPER

13 SCOTT MOORE

14 DENNIS RATHBUN

15 RATEB ABU-EID

16 ANDREW PERSINKO

17 CHRIS MCKENNEY

18 MIKE BELL (via telephone)

19 GIORGIO GNUGNOLI

20 NANCY OSGOOD

21 BILL BROCK

22 BRETT CARLSON (via telephone)

23 ROB LEWIS

24 CARL WITHIE

25 GORDON BJORKMAN

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<u>AGENDA ITEM</u>	<u>PAGE</u>
Opening Remarks by the ACNW Chairman . . . . .	4
Semiannual Briefing by the Office of . . . . .	6
Federal and State Materials and	
Environmental Management Programs	
Briefing on International Conferences . . . . .	73
on Decommissioning and Low-Level	
Waste Subjects	
Possible Use of Moderator Exclusion . . . . .	137
for Transportation Packages	
Adjourn	

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

(11:08 a.m.)

CHAIRMAN RYAN: Okay, folks, if we could come to order, please.

This is the third day of the 176th meeting of the Advisory Committee on Nuclear Waste. During today's meeting the Committee will consider the following: Savannah River National Laboratory Workshop -- I'm sorry, that's -- is that still -- no, that's not on. That has been postponed due to travel problems.

We'll receive now our semiannual briefing by the Office of Federal and State Materials and Environmental Management Programs. We'll receive a briefing on international conferences on decommissioning and low-level waste topics. A portion of that briefing may be closed pursuant to 5 U.S. Code Title 5, Section 552b, subsection (c), item 4, to discuss information obtained from IAEA to be treated as confidential. And we'll talk about the possible use of moderator exclusion for transportation packages.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Derek Widmayer is the Designated

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1 Federal Official for today's session.

2 We have received no written comments or  
3 requests for time to make oral statements from members  
4 of the public regarding today's sessions. Should  
5 anyone wish to address the Committee, please make your  
6 wishes known to one of the Committee staff. It's  
7 requested that the speakers use one of the  
8 microphones, identify themselves, and speak with  
9 sufficient clarity and volume so they can be readily  
10 heard.

11 It's also requested that if you have cell  
12 phones or pagers that you kindly turn them off.

13 If I could just take a point of privilege  
14 for the Chair, I want to recognize that we had 25  
15 guests visit us and participants in a two-day working  
16 group meeting on igneous activity yesterday and the  
17 day before. And, of course, we had the most fabulous  
18 weather Washington is probably going to have this  
19 winter.

20 (Laughter.)

21 And I want to recognize the members of the  
22 ACNW staff who really took care of all of these folks,  
23 got them in and out. We had to reorganize our two-day  
24 schedule. We had to help folks with travel  
25 arrangements. We had to help folks with overnight

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1 hotel arrangements due to cancellations. And I think  
2 everybody had a bed to sleep in and a hot meal, and a  
3 way to get home today if not necessary. And they  
4 really did a fabulous job of helping everybody out in  
5 a seamless way.

6 And, as always, you know, our room is  
7 under the great control of Theron Brown, and, you  
8 know, it worked perfectly no matter what the weather  
9 was. So I just wanted to put on the record that we  
10 really appreciate everybody's efforts, and the working  
11 group was a great success, largely in part to their  
12 ability to help folks battle the weather issues.

13 So thanks very much to all the staff for  
14 all your hard work.

15 Without further ado, I'm going to turn it  
16 over to Dr. Charles Miller, the Office Director who is  
17 going to lead us through this morning's briefing. And  
18 thank you for being with us.

19 DR. MILLER: Thank you, Mr. Chairman.  
20 It's a pleasure to be here today. What I'd like to do  
21 is to offer some overview comments as kind of get-  
22 acquainted comments, to give you what the structure of  
23 our office does and what our office accomplishes, and  
24 what we have before us with regard to challenges.

25 And I wanted to start by basically walking

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1 through our organizational structure. I brought my  
2 division directors with me here today. You'll hear  
3 from each of them concerning the activities in their  
4 division and opportunities for the future.

5 I guess before I start one of the things  
6 that I wanted to make sure of is that I wanted to make  
7 sure that the Committee is aware that, as a new  
8 office, I mean, we have merged from portions of what  
9 was NMSS and the Office of State and Tribal Programs.  
10 And I think it was our feeling, for those of us that  
11 came from NMSS especially, that we had established a  
12 good working relationship in the Committee, and it's  
13 our goal to continue that good working relationship,  
14 so that we can share views and we can get issues  
15 resolved.

16 That said, let me jump into our  
17 organizational chart. Sitting to my right is George  
18 Pangburn, who is my deputy. George will speak in a  
19 moment. I was lucky to get George; he came down from  
20 Region I. So he brings to our office a fair amount of  
21 regional experience in the materials and waste area.

22 Our office is organized -- I guess, first,  
23 Mr. Chairman, in spitting out the office name, it's  
24 quite a mouthful. A lot of people are asking, "How  
25 did you come up with a name that was long?" Well, I

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1 think the easiest way to say that is the final name of  
2 the office was a collaboration amongst the  
3 Commissioners.

4 (Laughter.)

5 And we came up with a name that was  
6 suitable to the Commission.

7 The office is divided into four divisions.  
8 We have three what I would call technical programmatic  
9 divisions and a division that does the program  
10 budgeting and planning. I wanted to focus your  
11 attention today on the three divisions that do the  
12 technical work for the office for the most part.

13 The first division is led by Janet  
14 Schleuter. She leads the Division of Materials Safety  
15 and State Agreements. There are three branches within  
16 that division. The branches focus on source security  
17 and safety. They focus on state agreements and  
18 industrial safety, and they focus on medical safety.

19 A lot of interface with these groups in  
20 the regions. The one thing that makes the materials  
21 program unique is that the licensing and inspection  
22 work for the materials program is primarily done in  
23 our regional offices. And we do the programmatic  
24 support and oversight for those offices.

25 The second division is the Division of

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1 Intergovernmental Liaison and Rulemaking, which is led  
2 by Dennis Rathbun. And there are three branches there  
3 -- the Intergovernmental Liaison Branch, the  
4 Rulemaking branch -- two rulemaking branches, A and B.  
5 And this division primarily focuses on our external  
6 interactions with other federal agencies, with states  
7 also as it relates to state liaison functions, and  
8 with Indian tribes. We have a jurisdiction.

9 We have a lot of interaction beginning  
10 with some of the Indian tribes, which is primarily  
11 focused -- the tribal views are primarily focused on  
12 activities that surround the geographical areas where  
13 the tribes reside.

14 And then, our third technical division is  
15 the Division of Waste Management and Environmental  
16 Protection. And this is the division I think that  
17 you're probably most familiar with, and the activities  
18 of this division pretty much came to this office  
19 intact, with the exception of one area. And I'll just  
20 touch on that, and you'll hear more from Larry in a  
21 little bit.

22 We focus on decommissioning here. We  
23 focus on environmental reviews. We focus on low-level  
24 waste. We focus on our activities with the Department  
25 of Energy as they relate to WIR. We focus on in situ

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1 leaching, and we'll get into more of this a little bit  
2 more.

3 The fuel -- some of the activities that  
4 come have come over from what was in the Division of  
5 Fuel Cycle, Bob Pearson's division at NMSS, and that  
6 was put in my office also. So I don't want to steal  
7 Larry's thunder, so I'll let him get into some of  
8 that.

9 Before I turn over the mike to George, I  
10 did want to touch on a couple things, and some of our  
11 global challenges as an office as we set up a new  
12 office. When you set up a new office, one of the  
13 first things that you have to do is get your processes  
14 in place, so I'm trying to take this first year to get  
15 a stable organization that has business processes in  
16 place, so that we can continue on with our activities  
17 and have a platform from which we can grow and  
18 improve.

19 Secondly, in bringing the various groups  
20 together, although we all work for one agency, offices  
21 develop their own cultures over time. So one of our  
22 challenges is in merging NMSS and the Office of State  
23 and Tribal Programs we're blending a couple cultures  
24 together.

25 And the people that are working in this

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1 office that come from those various factions are now  
2 intermixing day to day on their activities, and  
3 blending those cultures together is one of the things  
4 -- one of the themes that I think that you'll hear  
5 throughout the presentation as a challenge in getting  
6 us to have a smooth operating machine.

7 Thirdly, I have some geographical  
8 challenges, and that is that my office is spread  
9 between One White Flint and Two White Flint. And  
10 while you might not think that's very far, to overcome  
11 some of the cultural challenges it is important for  
12 the staff to get together.

13 There are just some side points. They  
14 don't necessarily reflect on the activities that  
15 you'll have before you, but they're some of the things  
16 that if I had been spending my time on in the first  
17 five months of setting up this organization --

18 CHAIRMAN RYAN: If I may, Dr. Miller, I'd  
19 like to recognize another challenge that this office  
20 and its predecessor has handled very, very well, and  
21 that is the fact that most of your licensed activities  
22 are in states.

23 DR. MILLER: Yes.

24 CHAIRMAN RYAN: You know, you're not like  
25 the reactor folks that have 104 and, you know, a

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1 smaller number of sites. And having worked myself in  
2 a state that was an agreement state, and having, you  
3 know, lots of visits from the regional office, you  
4 know, joint inspections and other activities -- and,  
5 again, the Committee's work on commenting on the MPEP  
6 program and other things, I don't want you to short-  
7 change the fact that that's a very robust program and  
8 has a real challenge to keep, you know, well-oiled and  
9 I think it's 36 -- is that the right number right now?

10 DR. MILLER: Thirty-four.

11 CHAIRMAN RYAN: Thirty-four, with a couple  
12 in the mill maybe?

13 DR. MILLER: We've got three states that  
14 are in the various stages of the process to become  
15 agreement states.

16 CHAIRMAN RYAN: And I don't think I'm  
17 short-changing by saying tens of thousands of  
18 licensees -- or licenses, I should say. Some hold  
19 many licenses but --

20 DR. MILLER: Thank you.

21 CHAIRMAN RYAN: -- that's quite a  
22 challenge. And, you know, you are managing it from a  
23 regional basis, and it's well done. We really  
24 appreciate that. I just don't want -- I want the  
25 record to reflect it's a national --

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1 DR. MILLER: Thank you.

2 CHAIRMAN RYAN: -- program.

3 DR. MILLER: Thank you, Mr. Chairman.

4 Yes, I mean, with over 20,000 licensees nationwide  
5 that range from one- and two-person companies to large  
6 corporations, it becomes quite a diverse challenge for  
7 both headquarters and the regions, and the agreement  
8 states who are our partners in this.

9 And 80 percent -- just for the record,  
10 about 80 percent of the licensees in the work are in  
11 the agreement states, and it's -- that percentage is  
12 growing as more states become agreement states. And  
13 the Chairman is very much interested in increasing  
14 agreement state activity to the maximum extent,  
15 getting more agreement states, getting more work.

16 He feels very strongly that the work is  
17 done close to home, that people know the licensees the  
18 best, and he's a champion for that. So we get full  
19 support from him and his office on that front, as well  
20 as the rest of the Commission.

21 Without further ado, I'd like to introduce  
22 George and let him make a few remarks.

23 MR. PANGBURN: Thanks, Charlie.

24 Good morning. Again, I'm George Pangburn.  
25 Appreciate the opportunity to be here today. A little

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1 bit about me. Charlie did mention that I came here  
2 from Region I. I was there for about 10 years, and  
3 during that time ran the materials program in that  
4 region.

5 Prior to that, I did spend three years in  
6 another regional office, in Region IV, dealing with  
7 uranium recovery issues. And in another lifetime  
8 before that -- I'm showing my age here I guess --  
9 worked on the Part 61 rulemaking as well as a  
10 relicensing of the Barnwell facility in the early  
11 1980s. So my experience is relevant to many of the  
12 activities that the Committee has interest in.

13 The office itself and the programs that  
14 we're responsible for is about 260 FTE, and about  
15 \$14 million in contract support. And those figures  
16 include the regions, and that's part of what I'd like  
17 to get to is talk a little bit about this relationship  
18 we have with the regions under FSME.

19 While it may not be unique, it's certainly  
20 a very strong relationship, in the sense that the  
21 regions regulate about 4,400 materials licensees in  
22 those areas where NRC has jurisdiction. As Dr. Ryan  
23 pointed out, you know, we do have 34 states where the  
24 states have the lead, but in the other states and in  
25 those portions of states where we have exclusive

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1 federal jurisdiction NRC has that responsibility, and  
2 that's under the regional program by and large.

3 The regions also play a key role in  
4 inspection and oversight of decommissioning  
5 activities. Whether it's at power reactors or  
6 materials facilities, they're the folks who are in the  
7 field and conducting the inspections in process and  
8 then final status surveys of those activities.

9 They also inspect independent spent fuel  
10 storage installations and work closely, again, with  
11 the program office and with Bill Brock's organization  
12 in that regard.

13 We do budget for them. As I mentioned a  
14 moment ago, that FTE figure includes the regions. We  
15 budget for both the materials and the waste portions  
16 of their programs. We work closely with the regions  
17 on a daily basis, literally, in the sense that we talk  
18 to regional coordinators every morning about events.  
19 We also work very closely with them in event response.  
20 When there are complicated events or where actions  
21 need to be taken in real-time basis, it's done through  
22 coordination between the region and this office --  
23 again, on the materials side of the house.

24 We worked closely with them in working  
25 groups on programmatic activities, rulemaking, and

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1 development of various regulatory products, as well as  
2 you alluded to a moment ago, Dr. Ryan, about the MPEP  
3 program and that's another place where we worked  
4 closely -- and staff -- to look at oversight of the  
5 agreement states and the various regions.

6 Our responsibility also includes sort of  
7 oversight of the regions. Through the MPEP program we  
8 do go out and look at their performance over a  
9 several-year basis.

10 Today what we hope to do is to talk to you  
11 a little bit about those programs in some detail.  
12 We're going to have each of the division directors  
13 here, as Charlie mentioned, in a moment -- come up and  
14 talk to you about some of their key programs and  
15 activities, their current interactions with the  
16 Committee, where there are such interactions, and some  
17 future interactions or challenges as is appropriate.

18 Larry Camper will come up first to talk  
19 about Division of Waste Management and Environmental  
20 Protection, followed by Scott Moore, for materials  
21 safety and state agreements. And then Dennis Rathbun  
22 will speak on the Division of Intergovernmental  
23 Liaison and Rulemaking.

24 So having said that, I'll turn it over to  
25 Larry Camper.

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1 CHAIRMAN RYAN: Great.

2 DR. MILLER: As Larry is coming up,  
3 Chairman, you know, you acknowledged the MPEP program.  
4 Janet Schleuter, the Division Director, is sorry she  
5 couldn't be here today, but she is en route to Florida  
6 for the exit for the Florida MPEP.

7 CHAIRMAN RYAN: Okay. Well, first things  
8 first.

9 DR. MILLER: Mission first, yes. Thank  
10 you.

11 CHAIRMAN RYAN: You know, we wrote a  
12 letter not too terribly long ago on the MPEP program,  
13 and I think one of the impressive elements of it is  
14 the fact that the agreement states staff people are  
15 involved in it as participants and as team members on  
16 your review, so they, you know, see other states and  
17 they learn what the NRC is doing, and it really helped  
18 set a common stage for expectations, which I think is  
19 very effective.

20 And the second point I think is that it  
21 really is, in our view, and from the work we did  
22 taking a look at it a little bit ago, it's a leading  
23 indicator kind of program. And in terms of being  
24 risk-informed, it, you know, tries to highlight those  
25 things that need attention first and get ahead of a

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1 problem, and identify corrective measures before  
2 things really are off track, so --

3 DR. MILLER: Right.

4 CHAIRMAN RYAN: -- that's pretty  
5 effective, given the amount of, you know, staff that  
6 you have to put across 36 programs. That's pretty  
7 impressive.

8 DR. MILLER: Thank you.

9 MR. CAMPER: Good morning.

10 CHAIRMAN RYAN: Good morning.

11 MR. CAMPER: Good to see you.

12 Mr. Chairman, members of the Committee,  
13 and the ACNW staff, it is indeed a pleasure from my  
14 perspective to be with you again. I'd like to start  
15 off my remarks by pointing out that I believe that my  
16 division's interactions with the Committee and with  
17 the staff of the ACNW has just been excellent over the  
18 past year, and we look forward to another good year,  
19 frankly, working closely with you on a number of  
20 challenging issues. So when I say it's a pleasure, I  
21 genuinely mean it.

22 Next slide.

23 You're quite familiar with the division.  
24 As Charlie pointed out in his remarks, one of the  
25 things that changed when the new office was created,

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1       though, was that the uranium recovery function came to  
2       my division.   Within that, then, we became a fully  
3       expanded, comprehensive decommissioning program.

4               I think you might recall that over the  
5       past few years we have been taking a number of steps  
6       in the decommissioning area to make the program one  
7       program that covers all aspects of decommissioning  
8       within the agency.   And now the program consists of  
9       research and test reactors, power reactors, complex  
10      material sites, and now those sites undergoing  
11      decommissioning in uranium recovery as well.

12              With regards to uranium recovery, this is  
13      an area where we forecast a great deal of work in the  
14      near term.   As I speak, we have indications of  
15      something on the order of 9 to 12 new applications for  
16      uranium recovery.   Most of those would be in situ  
17      leach.   Some would be conventional mining -- three.  
18      So nine for in situ leach recovery, three for  
19      conventional.   There may be more.

20              We're going out to a meeting with the  
21      National Mining Association in Denver in the spring  
22      time, and we'll be having a lot of sidebars and one on  
23      ones with various players in industry.   A year ago at  
24      the NMA there were 89 companies that expressed -- or  
25      89 entities that expressed an interest.   NMA believes

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1 there is something on the order of 12 to 15 that  
2 really have the resources and what have you to pursue  
3 this. So we certainly expect a tremendous workload in  
4 uranium recovery in the foreseeable future.

5 The next point I would make, then, that's  
6 so closely aligned with that initiative is  
7 prioritizing environmental reviews. The simple fact  
8 of the matter is is that we are underresourced in the  
9 environmental review area. We sought additional  
10 resources in the '08 budget request for environmental  
11 reviews. We did not get those resources.

12 And so if you'll look at recent activities  
13 for environmental analyses for sites such as USEC or  
14 LES, and the intense timeline that was associated with  
15 those sites -- 18 months -- will others come along  
16 like that? Plus known complicated environmental  
17 impact statements that we are working on, such as  
18 Shieldalloy or Sequoia Fuels, coupled with the  
19 potential for as many as 12 uranium recovery licensing  
20 actions.

21 You can see there's a pinch when it comes  
22 to environmental resources, because as we speak each  
23 of those uranium recovery licensing actions would need  
24 an environmental impact statement to support the  
25 licensing action.

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1           And we are exploring with the Office of  
2           General Counsel some other ways that we might do some  
3           creative things with regards to environmental impact  
4           statements, such as for example the possibility of  
5           conducting a generic environmental impact statement.  
6           But we don't know until we get a final answer from OGC  
7           if that's doable or not.

8           So prioritizing environmental reviews with  
9           limited resources, procuring more resources for this  
10          area, is an area that Charlie and I often talk about,  
11          and try to figure out what we can do to make that a  
12          little more palatable.

13          Implementing the low-level waste strategic  
14          assessment -- you're quite familiar with that. We  
15          discussed it with you. You gave us a lot of valuable  
16          input. We are completing the assessment. We plan to  
17          get the assessment up to the Commission in a SECY this  
18          summer. In that strategic assessment we will identify  
19          activities by high, medium, and low.

20          I think there is on the order of 10  
21          activities that we are classifying as high, and we'll  
22          need to move during the latter part of this year,  
23          certainly into FY08 and FY09, to implement those  
24          activities, assuming the Commission agrees with the  
25          staff's ranking of those activities and gives us the

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1 go-ahead to do so.

2 Enhancing waste incidental to reprocessing  
3 consultation and the associated monitoring for waste  
4 incidental to reprocessing -- this is an area that has  
5 gotten a lot of public fanfare, as you know, a lot of  
6 congressional interest. Last summer we received a  
7 letter from the Office of General Counsel at the  
8 Department of Energy that was quite critical of the  
9 process that we've been using.

10 In reviewing the determination prepared by  
11 the Department of Energy, it focused upon Section A of  
12 the NDAA of 2005, the National Defense Authorization  
13 Act, which charged the Secretary of Energy with  
14 conducting determinations in consultation with the  
15 NRC.

16 And DOE has taken some exception to the  
17 process that we've used. I think principally and  
18 basically they feel in many cases they are being  
19 treated like a licensee and being held to some of the  
20 same standards that they would expect a licensee would  
21 be held to by us. And so what we've been trying very  
22 hard to do is work with DOE to better understand their  
23 concerns.

24 We have had and are holding a number of  
25 closed agency-to-agency, government-to-government

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1 meetings, if you will, to better understand their  
2 concerns. We had a public meeting last November with  
3 DOE in which we set forth the fact that we would be  
4 holding these discussions.

5 What we are trying to do now is to figure  
6 out a better way to make the process work more  
7 smoothly, more effectively, so that both parties are  
8 comfortable with the process. And then, as we work  
9 our way through that, we would intend to go back to  
10 the public in short order, sometime this year, and  
11 explain the outcome of those discussions and make sure  
12 that the public understands the process that we'll be  
13 using.

14 We recently held a briefing for the  
15 Commissioners' assistants to make sure the Commission  
16 is being kept informed along the way as we try to  
17 enhance the process and make it even more effective.

18 The monitoring is a responsibility that we  
19 have under the Act. We are charged with assessing the  
20 compliance to ensure that the performance objectives  
21 of Part 61 are being met. We've developed the  
22 monitoring plans. We are now coordinating those  
23 monitoring plans with the state of South Carolina and  
24 the state of Idaho, along with DOE in near-term, and  
25 then we would expect to commence our monitoring

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1 activities first at the Idaho National Lab site,  
2 probably in the springtime when the weather is better,  
3 and then subsequently at the Savannah River Site.

4 Next slide.

5 This slide depicts a number of  
6 interactions that we've had with the Committee over  
7 the last year or so. Just to touch on a couple of  
8 them briefly, we have worked with you to take a look  
9 at ways to risk-inform the low-level waste management  
10 area and emerging low-level waste issues.

11 You know, you put together a very good  
12 white paper, in fact, that was useful to us as we went  
13 through the low-level waste strategic assessment  
14 trying to figure out what are the things we should  
15 focus upon. Of course, we worked together in a  
16 workshop that was in the spring of last year that was  
17 very effective in helping us deal with that.

18 You've also heard a presentation by Dennis  
19 Damon on materials, risk-informed activities. You've  
20 spent a lot of time and energy with us looking at ways  
21 to better risk-inform issues in the waste area. The  
22 prevention of legacy sites rulemaking is another area  
23 that you provided some consultation to us on, which we  
24 greatly appreciated.

25 As part of that workshop back in May we

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1 also talked about performance barriers for near-  
2 surface disposal. You were very instrumental in our  
3 overall decommissioning guidance overview. You came  
4 to our public meeting in April when we were looking at  
5 ways to update the guidance for decommissioning at  
6 large, and you played an important part there.

7 Of course, waste incidental to  
8 reprocessing, you played an active role in providing  
9 some consultation on the standard review plan that we  
10 are currently working to finalize at this point.

11 Next slide, please.

12 Now, in our program, we face a lot of  
13 challenges. And, frankly, to distill them down to  
14 three or four biggies, you know, is not easy. But  
15 three or four do come to mind that I think you can  
16 readily identify with.

17 One is the ongoing challenge to align  
18 federal and state agencies -- finality, if you will.  
19 Whether it be a power reactor in decommissioning or it  
20 be a complex site, what we find is there are many  
21 different views and many different standards that are  
22 brought to bear by different federal and state  
23 agencies.

24 And a lot of times when we think we've got  
25 alignment with the federal agencies, we'll find

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1 ourselves somewhat out of sync or at least having  
2 different views about in-state with a particular  
3 state, not the least of which of course at the moment  
4 in time is -- Shieldalloy is a good example of that.  
5 There are others, but that's just one that comes to  
6 mind.

7           Restricted use sites -- we have a  
8 provision in the license termination rule, in 20.1403,  
9 that allows for restricted release. The fact of the  
10 matter is is historically no site has ever gone the  
11 restricted release pathway. Some have started, but  
12 none have taken it from soup to nuts.

13           A number of different reasons for that,  
14 but the primary reason is is that there is a  
15 requirement in that part of the regulations that there  
16 be a third party oversight provided. And states or  
17 municipal jurisdictions can step up and assume that  
18 role. None have wanted to do so, because of liability  
19 concerns.

20           We went to the Commission recently, in the  
21 last year or so, with a policy change, which the  
22 Commission endorsed, that created a new pathway for  
23 long-term controls, institutional controls being  
24 provided by the NRC via a license in perpetuity over  
25 the period of performance for the rule.

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1           We now have an applicant that is pursuing  
2           that particular course of action; that being  
3           Shieldalloy. We have three other sites that are  
4           expressing an interest in restricted release. Those  
5           are different pathways under restricted release. One  
6           of those, for example -- the AAR site up in Michigan  
7           -- would be pursuing a deed restriction. Its extent  
8           of contamination is not nearly as much as it is at the  
9           Shieldalloy site, and there has been a rather dramatic  
10          remediation effort up there.

11           But nonetheless, restricted use sites are  
12          challenging, they are time-consuming, and they, of  
13          course, naturally invoke a great deal of local  
14          interest, as you might imagine, from state and local  
15          governments.

16           Anticipating low-level waste issues -- you  
17          know, if you would have asked me 10 years ago, would  
18          we have had some of the discussion that we've had, and  
19          some of the things that you have looked at when you  
20          did your white paper, I would have never envisioned  
21          that much interest in the low-level waste program. I  
22          just would not have envisioned it.

23           But if one looks at the GAO reports that  
24          have been done thus far, the National Academy of  
25          Science examination, your own efforts in looking at

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1 the program and what can be done to make it more risk-  
2 informed and to address some of the concerns that  
3 industry has about it, there has been a lot. It's a  
4 small program, as we've talked about before, limited  
5 resources, and we're in a maintenance mode, as charged  
6 by the Commission. But yet there is an awful lot on  
7 the plate.

8 That's the principal reason that we did  
9 the low-level waste strategic assessment -- to try to  
10 figure out, what are the things that we really need to  
11 spend our time and energy on, given limited resources.

12 So what's out there next? I don't know.  
13 I know there is a possibility of another GAO report  
14 looking at the compact process. Now that leadership  
15 of Congress has changed, will that continue to have  
16 traction? We don't know. Will there be other things?

17 So I suspect in due course we'll be back  
18 here with you talking from time to time again about  
19 issues emerging in the low-level waste area.

20 Next slide.

21 So in my last slide, I wanted to just  
22 focus a little bit on some of the interactions that we  
23 see coming down the pike. First is the legacy sites  
24 rulemaking. We've been with you on the legacy sites  
25 rulemaking. You've given us advice. We appreciate

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1 that. As I said earlier, we are now developing the  
2 technical basis for the rulemaking. We're  
3 constructing the language of the rulemaking.

4 You might recall just briefly that that  
5 rule really has two purposes. It really is -- it's  
6 designed principally for complex material sites that  
7 undergo events in the course of operations that  
8 weren't anticipated, resulting in subsurface  
9 contamination, groundwater issues, and the like. And  
10 the idea is when those things happen, what kinds of  
11 operational changes can be made? What kinds of  
12 reporting requirements are in order? And what needs  
13 to be done to make changes in financial assurance?

14 What we want to do is come back with you  
15 as we proceed with that rulemaking and share with you  
16 how that rulemaking is going and what the contents of  
17 that rulemaking are going to be.

18 Assessment of dose modeling, approaches in  
19 methodologies, this is a self-initiated effort by the  
20 division to take a look at the dose modeling  
21 techniques that we use. Since 1999, the  
22 decommissioning program has undertaken a number of  
23 evaluations of its processes. We've made a lot of  
24 changes, and, frankly, those changes have borne a lot  
25 of good fruit, as witnessed by the number of sites

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1 that we've been able to get off the decommissioning  
2 list in the last few years.

3 It took an investment to do that, and it  
4 took a lot of self-examination, and it took a lot of  
5 changes. And I commend the staff for stepping up to  
6 the plate and making those changes.

7 But the one area that we haven't looked at  
8 is the dose methodologies that we use. Are we state  
9 of the art? Are we doing it the right way? Are we  
10 doing it as well as we can? And Dr. Abu-Eid, who is  
11 our senior-level scientist, is leading the charge this  
12 year in taking a look at the methodologies that we  
13 use, and at some point he wants to come and talk with  
14 you about what he's finding and get some views from  
15 you.

16 Depleted uranium disposal analysis -- this  
17 is one that we were charged with the Commission by  
18 doing in the order -- in the matter of Louisiana  
19 Energy Services in which the Commission directed the  
20 staff to -- outside of the adjudication to consider  
21 whether the quantities of depleted uranium at issue in  
22 the waste stream from uranium enrichment facilities  
23 warrant amending Section 6155(a)(6) or Section  
24 6155(a), Waste Classification Table.

25 The state has identified that as one of

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1 the high priority line items in our strategic  
2 assessment, and it certainly is an area where we will  
3 want to seek some counsel from the Committee as we  
4 prepare that. I know that there's a lot of interest  
5 in that. Dr. Weiner, of course, has expressed some  
6 interest in that in one of the meetings earlier, and  
7 it is a very important issue. So we'll be coming to  
8 talk with you about that.

9 Revision of guidance for in situ leach  
10 recovery. I really should say revision of guidance for  
11 uranium at large. We recently had a workshop. Sixty  
12 attendees came -- this was on February 8th. A lot of  
13 interest was expressed in updating some of the older  
14 guidance that's out there, things dealing with health  
15 physics issues, modeling, flow and transport,  
16 monitoring of performance of flow and transport. Some  
17 of those things it would be of value to talk with you  
18 about.

19 And then, last but not least is  
20 coordinating the annual review of rulemaking and  
21 guidance on low-level waste storage. You know that we  
22 are charged, with the Commission, every year of going  
23 up with the SECY, explaining what is needed in terms  
24 of updating guidance for low-level waste. This past  
25 year we did indicate to the Commission that we would

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1 be updating guidance, especially guidance for long-  
2 term storage of Class B and Class C waste, given the  
3 pending closure of Barnwell.

4 Staff is in the process of doing that  
5 updating now. But that's something that cycles every  
6 year, and we'll come back and talk with you along the  
7 way about what seems to be in order for that  
8 particular year.

9 So I think in closure, then, again, it is  
10 a pleasure. It has been an excellent working  
11 relationship. And as Charlie pointed out in his  
12 remarks, we want to continue that. And I think as you  
13 can see we've got some interesting things we'll be  
14 coming and talking with you about.

15 Those are my remarks. Any questions or  
16 comments?

17 CHAIRMAN RYAN: A couple, if I may.

18 MR. CAMPER: Sure.

19 CHAIRMAN RYAN: And I guess we'll just  
20 take them one at a time for each talk as we go  
21 through. Is that okay?

22 DR. MILLER: I think that would probably  
23 be more efficient.

24 CHAIRMAN RYAN: Okay. Great. Just a  
25 general comment, first, Larry. I think we all agree,

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1 the Committee, that we've had a lot of success in  
2 working with your office and in every office in the  
3 now new division. But one of the elements of that  
4 that I think is very important to highlight and that  
5 we should keep is that it has been very proactive.

6 We have, on decommissioning, for example,  
7 participated from your first public meetings, just as  
8 participants and observers. And all the Committee  
9 members came and, you know, participated and observed  
10 and learned a lot. And because of that, we are  
11 contemporaneous with your information-gathering and  
12 learning processes, in a way that is effective, and I  
13 think at least from our viewpoint not really intrusive  
14 into, you know, your goals and objectives. We've got  
15 alignment --

16 MR. CAMPER: Good.

17 CHAIRMAN RYAN: -- which I think is very,  
18 very helpful for us, because we are a lot more up the  
19 power curve if you will than we might otherwise be if  
20 we get finished work products to then review. And I  
21 summarized all that when we had a couple working  
22 groups that Jim Clarke ran with the same participants  
23 a couple of times -- three I think -- and they got to  
24 see the draft guidance. They got to offer comment.

25 You got that comment. They get to look at

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1 the final, and the comment that I've shared with all  
2 the Commissioners is that participants said our  
3 comments were addressed. And I think that's a win,  
4 you know, when you can get stakeholders who are at the  
5 table and say, you know, we had a lot of significant  
6 comments, and they've been addressed in the guidance,  
7 and they were satisfied with how they were addressed.

8           So that's a real opportunity and maybe a  
9 model that we ought to use for all of our interactions  
10 across all of our activities. And I view that -- and  
11 we also advised the Commission of that in our last  
12 briefing in December. So three cheers for that  
13 approach.

14           So that's history. Now on to the tough  
15 stuff which is ahead, right? The hardware. I'm happy  
16 to see on your challenges page, on page 4, the things  
17 you've listed, because most of those in one form or  
18 fashion are in our action plan that we're working on  
19 now, so I'm glad to see those.

20           We have bumped up the uranium mining  
21 question to our tier 1 based on Commission interest  
22 and the obvious industry's need. We're very  
23 interested in Shieldalloy as a -- you know, a  
24 restricted site decommissioning, so we'd like to, you  
25 know, hear a little bit about that.

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1 I think the alignment with federal and  
2 state agencies is an ongoing challenge. And if you  
3 see anything where we can be helpful in that regard,  
4 we'd love to participate as well. So I see an awful  
5 lot of alignment with, you know, the issues that  
6 you're dealing with and with our interest.

7 So I don't think you'll see our action  
8 plan diverging too much. It might be in the specific  
9 details of who briefs about what, but --

10 MR. CAMPER: Right.

11 CHAIRMAN RYAN: -- we see an awful lot of  
12 alignment there, so I think that's a real positive  
13 thing.

14 The DU disposal analysis I'm sure -- and  
15 we don't need to go into detail there, but, you know,  
16 it would be helpful to learn a little bit more about  
17 when you say "disposal analysis" what's the circle of  
18 disposal analysis realm that we're thinking about  
19 there. That would be just one I'd like to get your  
20 mind on a little bit more as we go forward.

21 But, again, I think overall with this  
22 there's an awful lot of alignment, because as you  
23 pointed out we have participated together -- your  
24 staff and our work -- on the low-level waste white  
25 paper, and, you know, your strategic assessment and

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1 our meetings were basically aligned to be at the same  
2 time, so we all get the same information. That works  
3 very, very effectively, I think for everybody. So  
4 that's great.

5 Any other questions or comments from other  
6 members? Let's start with Bill, please.

7 MEMBER HINZE: I have a brief question.  
8 Larry, there is quite a bit of interest on the streets  
9 in the Texas low-level waste site, and I'm wondering,  
10 where is that on your radar screen, and are there any  
11 issues emerging from that that are of interest to the  
12 Commission?

13 MR. CAMPER: Where does it stand, first?  
14 We do monitor it quite a bit. We talk with Texas from  
15 time to time. We actually had people down there a  
16 year ago, year ago in May. It continues, of course.  
17 Texas did grant the additional time that WCS was  
18 seeking to provide answers to the extensive RAIs,  
19 Requests for Additional Information that the state  
20 had.

21 There were some changes that took place  
22 within WCS that I personally viewed as positive. The  
23 organization -- WCS -- decided to get Bill Dornsyfe  
24 much more actively involved in the application  
25 process. I think, you know, Bill brings a wealth of

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1 experience, having been a state regulator himself, and  
2 I think he, therefore, is well-positioned to  
3 understand the kinds of things that a regulator needs  
4 to be comfortable in proceeding to make decisions. So  
5 I viewed that as a positive step.

6 At this point, the state is continuing its  
7 interactions with WCS. I am not in a position to know  
8 what the outcome will be, of course, because it's an  
9 ongoing review. At some point some of those questions  
10 with regards to a need for the seeking of an exemption  
11 with regards to our regulations as far as land  
12 ownership is in play will come to bear at some point  
13 in the future for us.

14 But for the moment, it's proceeding. I  
15 sense that the state and the applicant are having more  
16 productive discussions. If you look at some of the  
17 RAIs that were generated, and certainly in the first  
18 round or so, some of those things seem to be fairly  
19 obvious from our vantage point. They were certainly  
20 reasonable questions on behalf of the regulator, and  
21 one wondered why there wasn't more in-depth  
22 information. You know, performance of groundwater  
23 aquifers, for example, is something you would expect.

24 So I think it's proceeding. I think it's  
25 getting better, but I don't know what the outcome will

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1 be. We'll continue to monitor it, and at some point  
2 we'll have some discussions with the state with regard  
3 to some of the land ownership provisions that might  
4 require an exemption.

5 But you're right, there's a lot of  
6 interest out there. I mean, I think there is  
7 certainly a sentiment that we'd like to see other  
8 options available. Some of the changes in industry of  
9 late have caused some concerns about making sure there  
10 is more options in competition, and so forth, so we'll  
11 continue to monitor.

12 With regards to coming to the Committee,  
13 I'd have to wait and see what technical issues we --  
14 if the state were to turn to us and request technical  
15 assistance on some challenging issue, that's a  
16 possibility. I just don't know what it is as we  
17 speak.

18 MEMBER HINZE: Thanks very much.

19 MR. CAMPER: Sure.

20 CHAIRMAN RYAN: Dr. Weiner?

21 MEMBER WEINER: Thanks very much for --

22 MR. CAMPER: You're quite welcome.

23 MEMBER WEINER: -- a very good  
24 presentation, and I applaud your taking on dose  
25 modeling. I have to say that that's a really great

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1 thing.

2 I wanted to make some comments regarding  
3 your comments about the EIS on in situ leach mining.  
4 Generic EIS is very tough in that context, because  
5 this is really a site-specific activity. And I was  
6 wondering if you had thought of going the  
7 environmental assessment route, and then if there is  
8 -- if it doesn't result in an NOI, then, for one side  
9 or another, then you go on.

10 MR. CAMPER: I mentioned it today, and I'm  
11 glad I did now that you're asking me questions,  
12 because I was wondering if I might stimulate a comment  
13 or two out of the Committee, because frankly we're in  
14 the thinking stage about this. I mean, the challenge  
15 that we face from an operational standpoint is we have  
16 a lot of them, they require an environmental impact  
17 statement.

18 We have sought counsel from the Office of  
19 General Counsel as to whether or not we might pursue  
20 a generic environmental impact statement. We're  
21 waiting for an answer.

22 If we're going to do that, then we would  
23 want to do that quickly, progressively, and on very  
24 short timeframe. That's a challenge. But even if we  
25 do a GEIS, even if we do -- and that's not certain yet

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1 -- but if we do, it does not eliminate the need, of  
2 course, for a site-specific environmental analysis.  
3 We'll still have to do those, because the sites are  
4 quite different, obviously, which is really what  
5 you're alluding to.

6 Now, the nice thing about doing a GEIS is  
7 -- there are two things. Number one, it would be more  
8 cost effective for our agency in the long run as  
9 compared to doing certainly EISs as we have  
10 historically and classically done them. As you know,  
11 that's about a 1.5 to 2 FTE per year for two years to  
12 do a classical EIS. Very expensive.

13 So we can perhaps do it more efficiently  
14 and cost effectively, and there are a number of  
15 things, certainly technical issues, that are generic,  
16 but that does not eliminate the need for site-  
17 specific. And our planning is considering that as  
18 well.

19 But the critical thing I think in addition  
20 to doing sound analysis is that if, in fact -- I mean,  
21 think about the number that we're talking about. The  
22 agency wants to be positioned not to be the roadblock  
23 to the front end of the nuclear renaissance, if that  
24 in fact becomes a reality. So we're looking at this  
25 from a number of different perspectives, and it's a

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1 big challenge for us.

2 MEMBER WEINER: What, beyond the fact of  
3 the state of New Mexico in its wisdom, decided to call  
4 the DU product from LES a waste? What is the -- what  
5 are the problems with DU disposal? Because DU is  
6 really a very useful substance.

7 MR. CAMPER: No question. I think the  
8 problem, aside from the term "waste" -- I mean, the  
9 fundamental problem is is that the volume of this  
10 waste, this type of waste, and the concentrations of  
11 this type of waste have not been evaluated. Years ago  
12 the Commission, and as recently as even in this  
13 proceeding, has determined that this is in fact low-  
14 level waste.

15 There is language in Part 61 that says,  
16 "If you don't put it into a table through analysis of  
17 classification, by default it's Class A waste." So  
18 what the Commission has asked us to do, because of  
19 some of the concerns that were raised in that  
20 proceeding, is to take a look at it aside from the  
21 adjudicatory process and do an analysis.

22 So what you're really looking at is the  
23 fact that this volume -- certainly, this volume was  
24 not evaluated historically. And, in fact, the  
25 concentrations were not. I mean, if you go back and

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1 look at the draft environmental impact statement that  
2 was put out years ago -- I'm not sure if I know the  
3 exact year, maybe Bobby does --

4 CHAIRMAN RYAN: 1979.

5 MR. CAMPER: There you go. But it talked  
6 about concentration values on the order of 50  
7 nanocuries per centimeter cubed. Okay? So of this  
8 waste has -- is much higher than that in  
9 concentrations, not uniformly but maybe a factor of  
10 five to 7 higher, and the volumes were never  
11 evaluated.

12 So what we really want to do -- and,  
13 again, I'm glad you're asking this question, because  
14 I want to pick up on Dr. Ryan's comment. What we  
15 really want -- what we need to do in the first  
16 instance is to conduct unbiased, sound technical  
17 evaluation. We do not want to think about outcomes or  
18 options on the front end. Let's do the analysis, good  
19 science, and it will be what it will be.

20 Now, depending upon the outcome, then  
21 we'll look at questions of waste classification, other  
22 ways of doing site-specific analyses under 61.58,  
23 whatever. I don't -- you know, there are options we  
24 can consider, but on the front end it has to be a  
25 valid technical analysis. Absence of malice, and it

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1 would be a good opportunity to get some dialogue and  
2 input from the Committee.

3 CHAIRMAN RYAN: If I can just add to your  
4 question, Ruth. One area I would urge you to start  
5 out with right away is the drift that has occurred  
6 between the types of DU that have been disposed over  
7 time.

8 MR. CAMPER: Yes.

9 CHAIRMAN RYAN: You know, very early on  
10 there was calcium fluoride with a tiny bit of stuff in  
11 it -- DU. And then, you know, it kind of went on to  
12 where now a lot of DU metal is being disposed as  
13 intact metal. So there's been a lot of drift in  
14 wastefrom, not just in waste concentration.

15 But the form part of it I think is  
16 something to capture. That's an important difference  
17 that has occurred. And there has been everything in  
18 between.

19 The other part of it is is that the fuel  
20 fabrication facilities, which is not really DU, but  
21 they basically, you know, do such a great job at  
22 recovering material they have precious little that  
23 they ever even throw away, so -- of the uranium  
24 content. So a lot has changed in that arena over 30  
25 years, so that's part of your, you know, initial

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1 information-gathering. It could be an interesting  
2 exercise.

3 MEMBER WEINER: I have one more brief  
4 question.

5 CHAIRMAN RYAN: Okay. Because we've got  
6 about six minutes to do --

7 MEMBER WEINER: Is greater than Class C  
8 waste under your jurisdiction?

9 MR. CAMPER: Yes, it is.

10 MEMBER WEINER: Thanks.

11 CHAIRMAN RYAN: Allen, anything else?

12 VICE CHAIRMAN CROFF: Yes. I'd like to  
13 ask a question on the waste determination standard  
14 review plan. You noted we had offered comments on it,  
15 and revision is in process. I understand we'll see  
16 the next version sometime in the summer. And we've  
17 got a commitment for staff to come in and tell us  
18 about the comment resolution.

19 Looking beyond that, do you see any  
20 technical issues arising on the waste determination  
21 business, either the consultation part or the  
22 monitoring part, which is something a little bit new?

23 MR. CAMPER: Possibly on both. Possibly  
24 -- you know, one of the things we're doing in these  
25 discussions with DOE is to address the seven generic

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1 issues. Point of compliance, for example, is one.

2 As we continue to work our way through  
3 resolution of those technical issues with the DOE  
4 staff, there is the possibility that we would seek  
5 some counsel on resolution of certain of those  
6 technical issues.

7 With regards to monitoring, I think to a  
8 large degree, you know, the challenge in monitoring  
9 is, you know, on the front end you develop this  
10 monitoring plan, but then what do you find over time?  
11 What do you find over time? And it's very  
12 complicated. As you know, it's not something where  
13 you can go out there every day and look, you know,  
14 casually or take a survey meter out like you can in  
15 the health physics review. It's much more complicated  
16 than that.

17 So there certainly may be issues that will  
18 emerge over time as we carry out our monitoring  
19 responsibilities that we'll feel that there is value  
20 in consultation with the Committee.

21 VICE CHAIRMAN CROFF: Talking about the  
22 monitoring brings to mind the working group meeting on  
23 linking modeling and monitoring, which may be the way  
24 to go there. Okay. Thanks.

25 CHAIRMAN RYAN: Dr. Clarke?

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1 MEMBER CLARKE: Thanks, Mike.

2 I certainly want to underscore everything  
3 Mike said about the relationship. I think it has been  
4 excellent --

5 MR. CAMPER: Thank you.

6 MEMBER CLARKE: -- and I personally want  
7 to tell you it has been a real pleasure working with  
8 you and your staff, and I look forward to continued  
9 interactions.

10 MR. CAMPER: I appreciate that very much.  
11 Thank you.

12 MEMBER CLARKE: The early involvement has  
13 been most helpful, and you mentioned legacy sites, and  
14 that we'll be interacting again with you, and we look  
15 forward to that. I did want to express an interest in  
16 the site you mentioned that may -- I guess in the  
17 context of your graded approach to institutional  
18 controls would be a low-risk site that may be going  
19 for a deed notice. And I think we'd be interested in  
20 following that as well as that develops. That would  
21 give us the range of complex sites from a long-term  
22 control license to something like a --

23 MR. CAMPER: A graded approach is exactly  
24 the key. that's the right way to describe it.

25 MEMBER CLARKE: But thanks, Larry.

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1 Appreciate it.

2 MR. CAMPER: You're welcome. Thank you.

3 CHAIRMAN RYAN: One last question that I  
4 might ask -- I forgot to ask it before -- is, Bobby,  
5 you're going to be leading the dose modeling and  
6 dosimetry review. And I applaud your effort; that's  
7 going to be a big job and you're well suited to do it.  
8 You've done great work in a lot of other areas.

9 One area of interest to me is the dose  
10 conversion factor itself. If you look at a dose  
11 conversion factor -- I don't care if you pick ICRP or  
12 FGRs or whatever you might want -- you can find many  
13 examples where they can be ultra-conservative, and you  
14 can find a few cases where they are non-conservative.

15 So I would say that's a fruitful area to  
16 examine, and we shouldn't just worry about transport  
17 of radioactive material and the environment, but also  
18 look at once it's taken into the body what's the basis  
19 for the GI tract uptake fraction or the dosimetry  
20 model itself.

21 You know, very often internal dose folks  
22 think if they get the dose to within an order of  
23 magnitude of what they measure from bioassay it's a  
24 win. Actually, two orders of magnitude is okay.

25 So that's kind of a specific point. But

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1 the general question is, I think -- and I'm just  
2 offering this as a thought, not as something that is  
3 -- you know, I can say I've ultimately concluded  
4 today, but it would be interesting to try and take the  
5 parts and pieces of that process of dose calculation  
6 modeling and calculation, and try and rank them a bit  
7 on where the best effort can be spent to reduce  
8 uncertainty and to better risk inform what's important  
9 there.

10 Is that a fair comment? Am I on track  
11 with what you're thinking?

12 DR. ABU-EID: Yes, that's fair,  
13 definitely. I think one of the issues is to use  
14 different dose conversion factors for ICRP. As you  
15 know, we use ICRP 26 currently in most of the dose  
16 analyses. We will look into other dose factors, such  
17 as ICRP 68-72, and even newer ones. Actually, in the  
18 models that we developed we did introduce different  
19 dose factors possibility and compared the results, so  
20 that's an area we'll be working on in the dose  
21 analysis.

22 In addition, for the uncertainty --

23 CHAIRMAN RYAN: Can I make a point there?  
24 I'd push it even further. Iodine-129 is my favorite  
25 example. It is most dependent on the dietary intake

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1 of iodine.

2 DR. ABU-EID: Okay.

3 CHAIRMAN RYAN: The dose from I-129. The  
4 reference factor I think it -- and I may not quote all  
5 of these right, but if ICRP 26 -- or maybe it's 68, I  
6 forget which one is based on, let's say, 200  
7 micrograms of iodine per day in the diet.

8 Well, if you have 400 milligrams of iodine  
9 in the diet per day, you have no dose. So you're  
10 overestimating the dose if you use that factor. If  
11 it's 150, which is some -- one report says is the U.S.  
12 average, you're underestimating the dose. So you have  
13 to actually bore in below the actual factor and say,  
14 "What's the metabolic model? What are the dietary  
15 intake drivers?" All those kinds of things to really  
16 see where the details are, and I would urge you to,  
17 particularly on some of the critical ones like Carbon-  
18 14, I-129, Neptunium-237 --

19 DR. ABU-EID: Plutonium-210.

20 CHAIRMAN RYAN: -- Plutonium-210 and --  
21 that's a popular one right at the moment. But there's  
22 a lot of those where I think if you can better risk-  
23 inform the dose conversion factor and tell folks, if  
24 you know these three things you can actually adjust  
25 the factor more appropriately for your specific

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1 circumstances, that would be a fabulous step forward  
2 in risk-informing those calculations. Just a thought.

3 DR. ABU-EID: Okay. Thank you.

4 CHAIRMAN RYAN: Thank you.

5 DR. MILLER: Thanks, Larry.

6 CHAIRMAN RYAN: Next?

7 DR. MILLER: Yes. Scott Moore is going to  
8 come up and talk about materials safety. As he's  
9 coming up, Dr. Ryan, you had mentioned interest in  
10 Shieldalloy. One of the things I think we have to be  
11 careful of here is Shieldalloy is now in hearing  
12 space, so we've entered an area of ex parte with the  
13 Commission.

14 So we can't talk -- we can't talk to the  
15 Commission about any of the technical merits of it,  
16 and I guess it's going to, you know -- I'm not exactly  
17 sure of what legal restraints are on the Committee.  
18 But if you're advising the Commission on that, we may  
19 get into some separation on that, and we probably need  
20 to be able to work together to make sure how we --

21 CHAIRMAN RYAN: Absolutely.

22 DR. MILLER: -- how we --

23 CHAIRMAN RYAN: I think --

24 DR. MILLER: -- carry that out.

25 CHAIRMAN RYAN: Absolutely. Our first

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1 step, however, would be I think to be more in the  
2 general briefing arena, so we can receive those  
3 materials that are in the docket like, you know,  
4 written plans or just an overview of the sight and  
5 other things that would be more straightforward of  
6 educating the Committee, clearly as step 1.

7 And I think if we step at that first step,  
8 and then stood back and then got into the more  
9 detailed discussion you just described, that would be  
10 a great start. So if that suits you, we can go there.  
11 And, again, we're not looking to, you know, be in the  
12 mode of hearing things that are currently under --

13 DR. MILLER: Well, I think, you know,  
14 where we have to be careful is, you know -- and I  
15 don't want to speak for you -- but your role in  
16 advising the Commission. And I think we have to see  
17 which side of the fence the Committee sits on.

18 And if it's to advise the Commission, and  
19 the Commission has a judicial role perhaps, depending  
20 upon how the Hearing Board comes out, we can't discuss  
21 the technical merits of the case at this point with  
22 the Commission, and I guess we have to see if we can  
23 do that with you given --

24 CHAIRMAN RYAN: Absolutely.

25 DR. MILLER: -- your role in --

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1 CHAIRMAN RYAN: We'll work through all of  
2 that with you.

3 DR. MILLER: -- or when in the process we  
4 can do that.

5 CHAIRMAN RYAN: Sure. No, we'll work  
6 through that with you. That's fine.

7 DR. MILLER: Yes. Scott?

8 MR. MOORE: Mr. Chairman, I'm here to  
9 brief the Committee on the Division of Materials  
10 Safety and State Agreements. As Dr. Miller and Dr.  
11 Ryan have already mentioned, we oversee a national  
12 program that covers regions and agreement states and  
13 thousands of licensees.

14 The division itself oversees medical,  
15 academic, and commercial uses of radioactive  
16 materials, and we're responsible for implementing  
17 policies on radiation protection and security within  
18 those licensees. We provide support and guidance on  
19 licensing, inspection, and enforcement activities that  
20 are conducted primarily by the regions and the  
21 agreement states themselves.

22 We also assess the regional performance of  
23 the regions through MPEP and evaluate agreement state  
24 adequacy and compatibility, also through MPEP. We  
25 thought the best way to do this would be to describe

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1 what the functions are of each of the branches  
2 organizationally, and so I'll walk through that.

3 But to give you some background, when the  
4 division was formed, it was an amalgamation of the  
5 former Office of State Programs, and Office of State  
6 and Tribal Programs, and Dr. Miller's former division  
7 -- the Division of Industrial and Medical Nuclear  
8 Safety, portions of both of those offices and portions  
9 of the division.

10 The last time the Committee heard from me  
11 was on the NARM rule, and that was when I was in a  
12 function under rulemaking. The rulemaking function is  
13 now under the Division of Intergovernmental Liaison  
14 and Rulemaking. You'll hear next from Dennis Rathbun,  
15 who is the Division Director for that division. So  
16 that's in a different division now.

17 One of our branches is the Source Safety  
18 and Security Branch. That branch has programmatic and  
19 technical responsibility for support of the sealed  
20 source and device program, where they review devices  
21 and the engineering of those sources and devices. And  
22 they also have responsibility for safety and control  
23 of sources.

24 So we do things like we hold weekly  
25 meetings with the agreement states and the regions on

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1 how to implement the institution controls and how  
2 those are used within states. That branch also  
3 implements the general license program and manages the  
4 materials licensing database management systems, like  
5 our sealed source and device registry, the general  
6 license tracking system, and also our licensing  
7 tracking system, which keeps track of materials,  
8 licensees.

9 Finally, the branch coordinates with our  
10 Office of Nuclear Security Incident Response and also  
11 the NMSS portion that split off from FSME on security  
12 issues, including security orders that have been  
13 issued, you know, over the last year, year and a half,  
14 to our licensees. So the source safety and security  
15 branch has responsibility for security requirements  
16 within our division.

17 The State Agreements and Industrial Safety  
18 Branch has responsibility for programmatic and  
19 technical areas within the industrial arena and also  
20 oversight of the agreement state program.

21 Dr. Ryan mentioned the MPEP program. That  
22 falls within this branch. It interfaces with  
23 agreement states, most of the agreement state  
24 coordination and the regional state agreements  
25 officers that are in the regions. That coordination

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1 is done from within this branch. For instance, we  
2 have monthly conference calls with the states, and  
3 that's managed out of this branch.

4 So oversight of the agreement state  
5 program is done from within the state agreements and  
6 industrial safety branch.

7 That branch also has a program to do  
8 exempt distribution licensing. It's the only  
9 licensing that we do out of headquarters. All of the  
10 other licensing is done from within the regions. But  
11 since exempt distribution, which is at very, very low  
12 levels of radioactive material is a nationwide  
13 program, that's done here out of the headquarters  
14 office.

15 Finally, we have a branch on medical  
16 safety and events assessment. That has programmatic  
17 and technical responsibility for medical uses of  
18 byproduct material. It also does regional  
19 coordination and event analysis and assessment for all  
20 types of materials events, including those within this  
21 office and those within NMSS for fuel cycle  
22 transportation-type events.

23 It's responsible for incident response  
24 coordination and emergency preparedness and  
25 coordination with the Ops Center, and maintains a

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1 database called the nuclear materials events database  
2 in the contract that we have with the national lab to  
3 operate that database.

4 Finally, it plans and coordinates  
5 activities with another advisory committee -- the  
6 Advisory Committee on the Medical Use of Isotopes, the  
7 ACMUI. And we have significant interaction with that  
8 advisory committee. And just like Larry Camper's  
9 division, he has a fairly large amount of interaction  
10 with ACNW. Our division has a fairly high amount of  
11 interaction with the ACMUI because of the medical uses  
12 that are within the medical program.

13 So we actually -- that's a staff-level  
14 advisory committee, and we support that. Just like  
15 you have your own staff, our staff supports the ACMUI,  
16 and so we spend a lot of time in that support role.

17 Can I have the next slide, please?

18 We don't have any current interactions  
19 going along now with the ACNW out of our division. If  
20 we do have future materials activities that fall  
21 within the purview of the Committee, we would  
22 certainly bring those to the Committee.

23 Could I have the next slide?

24 In prepping for this briefing, we are  
25 looking at what area might be of interest to the

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1 Committee. And one area that we thought of that may  
2 be of interest is what we're doing in material  
3 disposition or source recovery. There is two programs  
4 that are related -- the Orphan Radioactive Material  
5 Disposition Program, and the DOE Offsite Source  
6 Recovery Program.

7           The Orphan Radioactive Material  
8 Disposition Program is a cooperative agreement program  
9 that we have with the Conference of Radiation Control  
10 Program Directors. It provides information to assist  
11 states and NRC in source disposition, and is primarily  
12 listing waste brokers, individuals who want sources,  
13 and individuals who want to get rid of the sources,  
14 that's run by CRCPD.

15           It's focused on the smaller sources, and  
16 is mostly an information exchange, but also has a  
17 component in it that can disposition some of the  
18 smaller sources. And so NRC arranges to get money, a  
19 fairly small amount, about 100K per year, to CRCPD via  
20 a cooperative agreement through another federal  
21 agency.

22           And Orphan sources themselves are sources  
23 for which a responsible party can't be identified or  
24 are uncontrolled sources that require removal to be  
25 put into a situation that would protect the public

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1 health and safety, or they may be controlled sources,  
2 but they're in a condition such that the security  
3 can't be assured in such a situation.

4 So that's a fairly successful program for  
5 us, and at one -- it may be one that you may be  
6 interested in hearing about.

7 The other program that we have is one with  
8 DOE. It does not cost NRC any money, but it's DOE's  
9 program to address greater than Class C waste sources,  
10 and also allow licensees to register with DOE for  
11 source recovery. We have an MOU with DOE that covers  
12 this program, and allows DOE to recover significant  
13 security concern sources.

14 Both programs have a nationwide impact.  
15 They pick up sources across the nation, and we thought  
16 they may be of interest to the Committee. If the  
17 Committee is interested in hearing about it, we can  
18 brief the Committee. If you have other more pertinent  
19 issues, then certainly, you know, you could hear about  
20 those. But these are areas within our division that  
21 would fall under the purview of the Committee.

22 That concludes my briefing, f you have  
23 questions.

24 CHAIRMAN RYAN: Scott, let me thank you  
25 again for your briefing on NARM. I know that was a

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1       hurry-up rulemaking to meet requirements of newly-  
2       imposed requirements, and it seems like you've had a  
3       couple, three of those in your recent career with  
4       security issues that came along, and NORM and NARM,  
5       and you've kept us fully informed in a really helpful  
6       way to us.

7                        So we really appreciate you taking time  
8       out of what has to be a very busy schedule under those  
9       crunch times to keep us plugged in, so we really  
10      appreciate that.

11                      MR. MOORE:  Thank you.

12                      CHAIRMAN RYAN:  As you may or may not  
13      know, the Commission has actually suggested to us that  
14      they might be interested in expanding our activities  
15      into more materials areas, so we're thinking about  
16      that.

17                      MR. MOORE:  Yes.

18                      CHAIRMAN RYAN:  And I think rather than,  
19      you know, going into too much detail with -- because  
20      we're kind of working on our action plan even as we  
21      speak, we'll probably be in contact with you all on  
22      those topics as they come along, so there may be some  
23      additional things that will come into our purview as  
24      in the SRM that we received from the Commission.  So  
25      we'll be working on those.

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1                   One take-away message that I'll take from  
2                   you is that we really probably should be careful not  
3                   to overlap or step on the relationship that you have  
4                   with the CUMI, because clearly that's an area where  
5                   you have -- and the Commission has independent, you  
6                   know, advice on those areas. So that was really  
7                   helpful, to get a better insight there.

8                   MR. MOORE: Definitely.

9                   CHAIRMAN RYAN: So we'll be mindful of  
10                  that area that is -- and I'll just assume it's -- and  
11                  I probably agree with it, it's got pretty well --  
12                  pretty well covered now, so that's one we'll be  
13                  mindful of as we do our planning.

14                  Any other comments? Let's start with Dr.  
15                  Clarke.

16                  MEMBER CLARKE: No.

17                  CHAIRMAN RYAN: Allen?

18                  VICE CHAIRMAN CROFF: No.

19                  CHAIRMAN RYAN: Allen, no. Ruth?

20                  MEMBER WEINER: No.

21                  CHAIRMAN RYAN: Okay. Well, thank you  
22                  again. We appreciate it.

23                  And last but not least.

24                  DR. MILLER: Dennis Rathbun.

25                  CHAIRMAN RYAN: Dennis.

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1 MR. RATHBUN: Hi. Hello, Dr. Ryan. I'm  
2 Dennis Rathbun, Director of the Division of  
3 Intergovernmental Liaison and Rulemaking. I'll be  
4 very brief. Why don't we just go to the first slide.

5 There are several rulemakings which I  
6 think you're aware of which we're responsible for now  
7 in the -- yes, the rulemaking activities. The 656 in  
8 -- these are outgrowths out of the Energy Policy Act  
9 of August 2005, which governs the secure transfer of  
10 nuclear materials. 652 is work in progress, which  
11 covers fingerprinting and criminal history check,  
12 background check.

13 And then, as you know, the NARM  
14 rulemaking, which Scott I guess has briefed you on  
15 earlier, we are working on that now. The rule was  
16 published in draft form last July 26th. We've gotten  
17 39 comments and some from the agreement states and  
18 some from the medical community. And we're working to  
19 resolve those, and the expectation is to get that back  
20 to the Executive Director for Operations by the third  
21 week of March.

22 The other activity which is important to  
23 us has to do with allegations. That's a merged  
24 function from the old NMSS and state and travel  
25 programs, and now in the state and travel programs we

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1 were responsible for allegations which were received  
2 via the state employees. And now we're responsible  
3 for both of those in my division.

4 We have petitions that we are responsible  
5 for. There is one which is work in progress now  
6 involving the two-person radiography rule, and we're  
7 getting to a resolution of that particular one.

8 Let's go to the next slide.

9 The national source tracking system final  
10 rule was published, and we -- the other activity that  
11 we do every three years is the national state liaison  
12 meeting. That meeting was held last August 1st and  
13 2nd here in the building, and we're pleased to have  
14 had representatives from 34 states and the Department  
15 of Transportation represented in that meeting.

16 Chairman Klein, in one of his early  
17 discussions, met with the state and liaison -- the  
18 state liaison officers and talked up some of his  
19 ideas.

20 A third thing that we've been working on  
21 and made some important progress on is the pre-  
22 licensing guidance. As you may know, the General  
23 Accounting Office had some concerns and interests in  
24 that from the report -- the recommendation that they  
25 made a couple of years ago, and we've had a task group

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1 working with the states and ourselves and come up with  
2 what we think is a reasonable way of screening  
3 applicants for materials licenses, basically to get  
4 sort of a preliminary information base as to whether  
5 or not we should proceed.

6 We have a six-month pilot program in --  
7 you know, in progress now.

8 Let's go to the next slide, Sam.

9 Another thing that I'm responsible for is  
10 work with the Native Americans. The tribal  
11 stakeholder meetings, we've had two so far, one with  
12 the Prairie Island Indian Nation. We're concerned  
13 about the relicensing of Prairie Island and trying to  
14 find the best way that they can for being actively  
15 involved in that process.

16 The other one has to do with the Yukon  
17 Nation communities, and their issue -- their interest  
18 pertains to the possible Toshiba power reactor to  
19 supply power to Galena, Alaska. And then, we have  
20 another piece of work in progress, exemptions from the  
21 -- from licensing. This basically is a fix-up to some  
22 -- you know, bringing up to date the exemptions for  
23 licensing in the final rule.

24 The last slide is basically, you know,  
25 some of the activities that we have still ahead. One

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1 of the outgrowths of the review and action on the  
2 Minnesota application to become an agreement state was  
3 a concern, which is true or could be true in a number  
4 of places, that activities undertaken by a state may  
5 have a -- may infringe upon a regulatory authority  
6 under the Atomic Energy Act, which is actually  
7 reserved to the NRC.

8 And that's an area of some interest to the  
9 General Counsel's office and also to the Commission.  
10 And so they asked us to prepare a paper on that, how  
11 we might deal with those kind of circumstances, and to  
12 apprise them of where they might -- where we think  
13 that they might have taken place. You know, we've  
14 prepared that paper and sent it up to the Commission.  
15 There was a joint -- basically, a joint paper with the  
16 Office of the General Counsel.

17 And with that, of course, we all have our  
18 problems in terms of the rulemaking schedule. There's  
19 always an issue and also budget, but, you know, that's  
20 not new and different.

21 So I'll open it up to any questions you  
22 might have.

23 DR. MILLER: Before questions, I guess as  
24 we flipped through the slides, you may have noticed  
25 there are some rulemaking activities that we have to

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1 do in our office that support other offices. For  
2 example, the high-level waste program, security  
3 rulemaking. So over the course of time, especially as  
4 it relates to the high-level waste program, you'll be  
5 hearing as we go forward from that.

6 The technical basis is really done in  
7 NMSS, in Jack Strosnider's organization, but --

8 MR. RATHBUN: Sure.

9 DR. MILLER: -- my organization and  
10 Dennis' division has to take that information and  
11 promulgate a rule at some point in time. Rulemaking  
12 changes need to take place.

13 Same in the security area. We support  
14 NSER in that regard. So --

15 MR. RATHBUN: That's a big challenge, and  
16 that's a big challenge because basically it calls --  
17 in order to prepare a rule you really have to have a  
18 satisfactory basis for the rule, a technical basis for  
19 the rule, and it has to be well thought out and well  
20 designed, and in order to allow us to proceed, with  
21 the expertise for doing the rule. The support work it  
22 generally mentions is in our shop.

23 CHAIRMAN RYAN: Okay. Dr. Clarke?

24 MEMBER CLARKE: None for me, thanks.

25 CHAIRMAN RYAN: Bill? Ruth? No?

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1                   MEMBER HINZE: Excuse me. I was just  
2 interested, are you having problems getting the  
3 information that you need to develop the geological  
4 repository operations?

5                   DR. MILLER: No. You shouldn't take that  
6 from this presentation. I just wanted to alert you to  
7 the fact that I've been given the responsibility in my  
8 office to do rulemakings, not only for those rules  
9 that would originate in my office but for other non-  
10 reactor -- non-power reactor related rulemakings  
11 and --

12                   MEMBER HINZE: I was more interested in  
13 the aspect of whether the DOE is far enough along with  
14 -- and you're getting sufficient information that  
15 permits --

16                   MR. RATHBUN: Well, that's a much more  
17 global -- that's a much more global question.

18                   DR. MILLER: That's a question you'll have  
19 to ask Jack.

20                   (Laughter.)

21                   MR. RATHBUN: Well, that's right, and I  
22 can hardly wait to hear his answer.

23                   (Laughter.)

24                   MEMBER HINZE: Good.

25                   CHAIRMAN RYAN: Nothing like asking the

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1 big question.

2 The office -- the division's name is  
3 Intergovernmental Liaison. Can you tell us a little  
4 bit about interactions with EPA and some of those  
5 overlap areas or --

6 MR. RATHBUN: Well, it's there in concept,  
7 and it's there, for instance, in areas -- specific  
8 areas like the in situ leaching rulemaking that the  
9 Commission is interested in and we're working on.  
10 And, consequently, there is a perfect example, kind of  
11 a poster child of where we can't -- you know, the  
12 Nuclear Regulatory Commission can't move forward  
13 without consultation and working with both the  
14 Environmental Protection Agency and also the other  
15 side, potentially the National Mining Association.

16 So that's an example of a particular --  
17 probably a pretty good one --

18 DR. MILLER: The intergovernmental is not  
19 only federal but state also. This organization --

20 MR. RATHBUN: Sure.

21 DR. MILLER: -- does the state liaison  
22 function. The state liaison function in the states  
23 and out of our regions, which Dennis interfaces with,  
24 for example, goes in overlap to nuclear powerplants  
25 and state liaison in that area. So --

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1 MR. RATHBUN: Emergency planning.

2 DR. MILLER: Emergency planning, yes.

3 Emergency response.

4 CHAIRMAN RYAN: Just our of curiosity, are  
5 there any mixed waste issues you deal with from an  
6 interagency perspective?

7 MR. RATHBUN: I haven't personally.

8 CHAIRMAN RYAN: To put a little finer  
9 point on it, there has been a couple of efforts over  
10 the years to deal with mixed waste, and there's a  
11 current advanced notice of proposed rulemaking out.  
12 Is that on the horizon at all or --

13 MR. RATHBUN: Possibly.

14 DR. MILLER: That hasn't been put on  
15 Dennis' plate. Where that would come through would be  
16 through, you know, either Larry's division or -- and  
17 who would do any technical bases kind of work. Where  
18 it would come over to Dennis would be if we needed to  
19 take any regulatory action with regard to rulemaking  
20 in that area.

21 CHAIRMAN RYAN: Gotcha. The reason I'm  
22 asking is that one of the commissions that I'm  
23 briefing, Commissioner Jaczko asked us specifically  
24 about that interaction between very, very low activity  
25 waste and --

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1 DR. MILLER: Right.

2 CHAIRMAN RYAN: -- subtitle C facilities,  
3 and so forth.

4 DR. MILLER: Larry, I didn't know if you  
5 wanted to make any more remarks in that regard or not.

6 MR. CAMPER: No. I think, Charlie, you --  
7 just is -- as pointed out, I mean, this issue of mixed  
8 waste, there was a point in time when there was a head  
9 of steam at EPA, and it has quieted down frankly in  
10 the last few years.

11 CHAIRMAN RYAN: Okay.

12 MR. CAMPER: And will it reemerge, as  
13 Dennis is pointing out? It might.

14 CHAIRMAN RYAN: Well, as we begin to  
15 respond to the question from Commissioner Jaczko and  
16 the Commission's SRM, well, we may be trying to get  
17 your insights a little bit more fully about that. But  
18 thank you very much.

19 MR. RATHBUN: He would probably ask us,  
20 too.

21 CHAIRMAN RYAN: Yes.

22 (Laughter.)

23 DR. MILLER: Dr. Ryan?

24 CHAIRMAN RYAN: Yes.

25 DR. MILLER: In wrap-up, unless you have

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1 any --

2 CHAIRMAN RYAN: Please. No, that's fine.

3 DR. MILLER: -- more questions, you know,  
4 appreciate the opportunity to kind of give you an  
5 overview today. As you can see, there are going to be  
6 a lot of interactions that we'll have with the  
7 Committee. I'm very interested in your action plan.  
8 I'd like to be able to work together with you and the  
9 Committee as you formulate your action plan and with  
10 our activities to leverage the resources that we have,  
11 so that we can get the maximum utilization and maximum  
12 benefit from both your perspective and from my  
13 perspective.

14 My resources are not growing, and I'm just  
15 looking for opportunities to leverage those in the  
16 best way, so that we can meet your needs and meet our  
17 needs and together we can continue to make progress  
18 and accomplish some goals in the near term and in the  
19 longer term.

20 CHAIRMAN RYAN: Well, we sure concur with  
21 the idea that if we work smartly we can all be  
22 winners, and we've got some real good examples to  
23 follow and working with your staff already. So --

24 DR. MILLER: We'd like to continue to  
25 build on this.

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1 CHAIRMAN RYAN: -- we will do that. I'd  
2 be remiss if I didn't, to that point, recognize the  
3 fellow sitting to your left, Sam Jones. He is really  
4 very effective at working with us month to month and  
5 probably much more -- not probably, but much more  
6 frequently with the staff on helping us define our  
7 interests and to get the folks from the various parts  
8 of your -- you know, your organization to help us  
9 understand what activities are underway and what the  
10 information is.

11 DR. MILLER: Right.

12 CHAIRMAN RYAN: So Sam's an integral part  
13 of that success story.

14 DR. MILLER: Thank you.

15 CHAIRMAN RYAN: So I'd be remiss if I  
16 didn't recognize his ability.

17 DR. MILLER: Sam is an example --

18 CHAIRMAN RYAN: And our own staff as well.

19 DR. MILLER: Yes. Sam is an example of  
20 what I talk about in leveraging resources. Sam is a  
21 hybrid, what we call a hybrid. It doesn't mean that  
22 sometimes he runs on gasoline and sometimes he runs on  
23 a battery pack.

24 (Laughter.)

25 Because we didn't get additional

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1 resources, neither Jack or I, Sam has been serving  
2 both offices --

3 CHAIRMAN RYAN: Sure.

4 DR. MILLER: -- as the liaison function  
5 with the Committee.

6 CHAIRMAN RYAN: Well, we appreciate that.

7 DR. MILLER: We appreciate it.

8 CHAIRMAN RYAN: It's a very effective way  
9 for us to communicate clearly and smoothly with your  
10 organization, so --

11 DR. MILLER: Thank you.

12 CHAIRMAN RYAN: All right. With that,  
13 we've eaten into everybody's lunch break a little bit.  
14 So without further ado, I will adjourn for our lunch  
15 break. And let's schedule to reconvene at 1:15, if  
16 that's okay.

17 Thank you all very much.

18 (Whereupon, at 12:28 p.m., the  
19 proceedings in the foregoing matter  
20 recessed for a lunch break.)

21

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1 A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

2 (1:17 p.m.)

3 CHAIRMAN RYAN: An item of business, I  
4 would ask members to do your timesheets before you  
5 leave today, so you can turn those in, please.

6 And our next item on the agenda is a  
7 briefing on international conferences on  
8 decommissioning and low-level waste subjects. And  
9 take it away. Here we go.

10 MEMBER CLARKE: Actually, we've got two  
11 presentations here. I'll get us started.

12 CHAIRMAN RYAN: Oh, I'm sorry, Jim. This  
13 is your deal. Go ahead. Jim, take it away.

14 MEMBER CLARKE: It's actually both of us.

15 CHAIRMAN RYAN: Well, both of you.

16 MEMBER CLARKE: I'll get us started with  
17 Drew, and then I'll turn to Allen and --

18 CHAIRMAN RYAN: Okay.

19 MEMBER CLARKE: -- the second one. So  
20 we're going to allot about 45 minutes for each of  
21 these.

22 Our first speaker is Drew Persinko, Branch  
23 Chief of the Special Project Branch of the  
24 Decommissioning Directorate in the Office of Federal  
25 and State Materials and Environmental Management

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1 Programs.

2 Now, Drew attended and participated in the  
3 international conference on lessons learned from  
4 decommissioning of nuclear facilities and the safe  
5 termination of nuclear activities. This meeting was  
6 held in Athens in December, and he will brief us on  
7 the results.

8 Drew, thank you.

9 MR. PERSINKO: Good afternoon. I was  
10 said, I'm going to give a short brief on the lessons  
11 learned conference that was held in Athens in  
12 December. It's the international conference on  
13 lessons learned from the decommissioning of nuclear  
14 facilities and the safe termination of nuclear  
15 activities.

16 It was sponsored by the International  
17 Atomic Energy Agency. There were about 300 attendees  
18 at the conference and representing about 56 countries.  
19 So it was well attended.

20 I'll talk a little bit about the U.S.  
21 participation and the U.S. Government participation.  
22 From the U.S. Government, there were representatives  
23 participating from NRC and Department of Energy. From  
24 NRC it was Dr. Charles Miller and myself. From  
25 Department of Energy, Mr. Dae Chung, Andrew Szilagyi,

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1 Sandra Waisley, Frazier Lockhart, who heads the Rocky  
2 Flats field office.

3 The U.S. presented seven papers at the  
4 conference, two from NRC, one by DOE, one from EPRI,  
5 and three from private industry. Additionally, the  
6 U.S. was represented on five panel sessions.

7 In addition to that, Dr. Miller chaired a  
8 session, and I was also a rapitore for a session, as  
9 well as I was on the program committee to help the  
10 IAEA arrange the conference.

11 The conference was set up in basically  
12 seven sessions, and there were -- each session  
13 consisted basically of two parts -- a presentation of  
14 approximately five papers, and then there was a break,  
15 and then there was a panel discussion with about five  
16 people on each panel discussing a topic of relevance  
17 to the session.

18 There were no breakout sessions. This was  
19 all sequential in one large room. The conference  
20 sessions, as I said, there were seven of them, global  
21 overview, regulation of decommissioning activities,  
22 there was planning of -- planning for decommissioning,  
23 implementation of the decommissioning activities,  
24 waste management activities, technology, a session on  
25 technology, and also a session devoted to

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1 decommissioning small facilities.

2           The NRC papers -- as I said, the NRC  
3 presented two papers. One was written by Larry  
4 Camper, and it was presented by Charlie Miller. And  
5 the other paper was mine on -- it was mine. The first  
6 paper -- Larry's that Charlie presented -- was  
7 entitled "Lessons Learned: Past to Future."

8           And in the paper Dr. Miller -- the paper  
9 largely summarized NRC documents -- the current NRC  
10 documents that have lessons learned in them -- for  
11 example, that we have two RISs that we published with  
12 lessons learned, and recently we've updated our  
13 NUREG-1757 to address such issues as soil mixing and  
14 flexibility and realistic scenarios.

15           So the paper summarized those documents.  
16 The paper also briefly contrasted two different  
17 decommissionings that we did with reactors. And the  
18 overall -- and also another overall point of the paper  
19 was knowledge management; hence, the title "Past to  
20 Future." It was noted that most of the people in the  
21 room are not going to be the people who are doing the  
22 next generation as well, so it's important to capture  
23 knowledge management and pass it on to the next group  
24 of people who will be responsible for decommissioning.  
25 So that was kind of an overriding theme of the paper

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1 that Larry Camper wrote.

2 In my paper I describe the graded approach  
3 that was in -- that's in our NUREG-1757, the six  
4 categories that are in there, and how the grading --  
5 what's graded. You know, sometimes we require an EA,  
6 sometimes we require an EIS, and I talked about the  
7 six categories and how the grading -- as the  
8 complexity increases, how the grading also increases  
9 the requirements that have become more stringent. So  
10 I discussed those aspects.

11 I noted also that most license  
12 terminations are routine. Of those that are not,  
13 though, the ones that are complex, they can be  
14 difficult, and they can be expensive as well. So even  
15 though most are routine, those that are not can be  
16 difficult and expensive. So I made the point that  
17 small does not necessarily equate to easy or  
18 inexpensive.

19 Let's see. I issued a joint trip report.  
20 Charlie Miller and I put together a joint trip report.  
21 I think the Committee has access to that. In it I --  
22 we talked about 11 high-level points. I'll note that  
23 there are no proceedings from the conference yet, so  
24 I do not have copies of the papers that were  
25 presented. They will be in the proceedings when they

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1       come out, and they should be out in a few months.

2                   And so largely what I'm presenting is  
3 based on my memory as well as the high-level report  
4 that was written by the president of the conference.

5                   Okay. So with that, I just thought I  
6 would summarize some of the lessons learned that were  
7 discussed at the conference. I would like to note,  
8 though, that as I go through this a lot of it, you  
9 know, it was a lessons learned conference, but a lot  
10 of what happened at the conference, too, was the  
11 sharing of difficulties, not necessarily "this is what  
12 we learned," you know.

13                   There was learning, but there was also  
14 let's tell you how hard this was, what we had to do,  
15 and what we faced. So it was the sharing of  
16 difficulties. And I think it's fair to say I don't  
17 think there were any truly surprises that jumped out  
18 at me and said, "Oh, that's a brand-new one that we  
19 hadn't heard of before." So I don't think there were  
20 any "ah ha" moments, as I call them.

21                   So with that, I'll just talk a little bit  
22 about it. So what I'm saying is a lot of what you  
23 hear is probably things you've thought about or heard  
24 before as well.

25                   And I didn't correlate these lessons by

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1 session. I, rather, tried to do it by topic, because  
2 some of them actually cross-cut several sessions. I'd  
3 say first there was one with strategies --  
4 decommissioning strategies. There was quite a bit of  
5 discussion about the benefits of doing immediate  
6 dismantling versus deferred dismantling. Is it  
7 acceptable to defer dismantling?

8 The consensus was yes, there is. There is  
9 a justification for deferring dismantling, and three  
10 reasons are having a lack of funding currently,  
11 anticipating that you may get some funding in the  
12 future, there may be a lack of waste management  
13 arrangements currently, and also for social and  
14 political reasons.

15 But it was also noted that deferred  
16 dismantling does not just mean we close the door and  
17 we walk away from the facility. You have to make sure  
18 that the facility is in a safe condition at the time  
19 you walk away, and you also have to plan for a  
20 knowledge management plan, because the knowledge that  
21 currently exists to a facility will likely be gone  
22 when you resume the decommissioning in the future.

23 Second point was, as knowledge management  
24 -- and I said this is I think a cross-cutting topic.  
25 It came across in several of the sessions. But it was

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1 noted that the time scales for many decommissioning  
2 projects are long, and it's important to make sure you  
3 don't lose the knowledge from the existing staff  
4 regarding plant configuration or operating history,  
5 because as time goes on the existing staff will retire  
6 and gradually disappear, and it may be difficult to  
7 resurrect some of the knowledge that you could have  
8 obtained had you had a knowledge management plan in  
9 the beginning.

10 So there need to be mechanisms for saving  
11 and managing the knowledge, and I also mentioned if  
12 you were going to defer it that's another reason for  
13 having one.

14 With respect to the regulatory aspects, I  
15 think one of the main topics was that decommissioning  
16 is really a dynamic phase. Unlike operations, which  
17 tends to be more steady-state, decommissioning varies  
18 day to day, you're facing new things you hadn't seen  
19 before, so it's a dynamic situation, and, thus, it  
20 requires regulatory flexibility.

21 And there was a discussion about an  
22 internal authorization approach that the French use,  
23 which sounded to me like something similar to what we  
24 do in 10 CFR 50.59, whereby not every little thing is  
25 needed to be approved by the regulator, yet the

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1 regulator does have oversight.

2 Also, there was talk about a graded  
3 approach needed to reflect the hazard level. And so  
4 that was brought up in the regulatory session as well  
5 as later when I spoke about the small facility  
6 session, so graded approach was another cross-cutting  
7 topic.

8 Funding -- inadequate funding to do  
9 decommissioning was a cross-cutting topic that came  
10 across in several sessions. It was noted that lack of  
11 funding is a main reason why decommissioning progress  
12 is not made for many facilities, and there was some  
13 facility, some countries, that begin planning very,  
14 very early, while they are still in operation, but  
15 they are way early in the process and the idea there  
16 is that that planning is largely so that they can get  
17 a handle on the funding come decommissioning time.

18 Ideally, the arrangements for  
19 decommissioning funding should be made before the  
20 facility becomes operational. And it was noted also  
21 that while funds usually exist for civil nuclear  
22 powerplants, this is not the case for other types of  
23 facilities. It was noted that responsibility for  
24 funding lies with the operators, but it was also noted  
25 that ultimately the responsibility lies with national

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1 governments. So that was mentioned by a number of  
2 participants.

3 Another topic that was discussed was  
4 transitioning from operations to decommissioning. It  
5 was noted that, as you change from an operational  
6 state to a decontamination/dismantling state, this  
7 work scope is really changing, as well as the risks.  
8 The risks are generally less. And also, it was noted  
9 that you need a different skill set when you're doing  
10 decommissioning than when you're doing operations.

11 While it's important to maintain some of  
12 the operations staff to make sure you capture the  
13 knowledge, it was also noted that largely -- in  
14 decommissioning space, it's largely a project  
15 management activity, and so a different skill set is  
16 -- different mix of skill sets is necessary to carry  
17 out the decommissioning.

18 Also, there was a topic -- a cross-cutting  
19 topic of clearance of materials from decommissioning.  
20 It was noted that a vast majority of the material  
21 resulting from decommissioning is really low activity,  
22 below clearance levels. And the use of clearance has  
23 the potential for considerably lowering waste disposal  
24 costs, and it was noted that clearance levels should  
25 be harmonized between countries to avoid

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1 misunderstandings and transboundary problems.

2 It was also noted that the IAEA in 2004  
3 wrote a safety guide on the subject of clearance, and  
4 I think it is slowly being adopted by some countries.

5 There's a section on technology, and it  
6 was noted that worker safety and cost and duration are  
7 not mutually exclusive. In fact, it was noted that  
8 many of the aspects related to work safety and  
9 technology also lower costs and the duration of  
10 decommissioning as well.

11 It was noted that starting quickly with a  
12 simple technology, and then continually improving it  
13 with the involvement of the workforce, has a greater  
14 success than starting off trying to develop some  
15 highly engineered solution that has a long deployment  
16 schedule. And so usually simple technologies are  
17 found to be the best, and that was a point made by Mr.  
18 Lockhart from Rocky Flats, actually.

19 Some examples of the decommissioning  
20 technology were discussed, such as recycling concrete,  
21 cutting reactor vessel internals.

22 And the last topic was decommissioning  
23 small facilities. And as I said, kind of the  
24 overriding themes there are that small doesn't  
25 necessarily mean easy or inexpensive. Small

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1 facilities are often what they call the orphans of  
2 nuclear installations, because they have technologies  
3 and fiscal housings that are very old and date back  
4 decades.

5           So, also, for smaller facilities, as I  
6 said, funding is often an issue, because, you know,  
7 the civil -- the larger facilities, although they are  
8 larger, they usually can find the funding, whereas the  
9 smaller facilities have a more difficult time funding  
10 the decommissioning.

11           So that's kind of the overall -- I think  
12 the big picture topics that cross-cut through the  
13 conference.

14           Grading was an interesting topic. I  
15 talked about that, and afterward there were a number  
16 -- a few folks came up to me and were inquiring about  
17 the NRC's grading scheme. And I even had a few people  
18 say that they might contact us in the future and try  
19 to understand it better, so there was interest on the  
20 grading.

21           So as I said, you know, I don't think  
22 there were really any surprises or any what I call "ah  
23 ha" moments that, wow, this is -- we found something  
24 really brand new. I think mostly it reinforced what  
25 we all have faced, and what we are basically talking

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1 about with respect to lessons learned when we discuss  
2 the topic.

3 I think -- there were some new,  
4 interesting technologies I think that I found -- I was  
5 not aware of, and they talked about -- EPRI talked  
6 about internal reactor pressure vessel, internal  
7 cutting, and also the subject of recycling concrete.  
8 I thought that was very interesting.

9 So I don't think -- you know, I said I  
10 don't think it was -- found anything brand new, but I  
11 think it was beneficial hearing the sharing of  
12 experiences from others in an international setting.  
13 And you find out that while some things seem unique at  
14 the beginning, well, you know, they're basically the  
15 same problems that we're all facing when it comes down  
16 to decommissioning.

17 There were some planning problems. In one  
18 site I remember there was a site in an eastern  
19 European country, and they ran into problems because  
20 they had contractors as well as the owner, as well as  
21 the government, and it became a problem with -- they  
22 had translation problems between the groups, and the  
23 decommissioning project actually fell way, way behind.  
24 And it was because there was lack of coordination and  
25 a lack of planning in the beginning.

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1                   There was a discussion about  
2 decommissioning a facility in Cuba where they faced a  
3 lot of -- a hospital, I believe it was, where there  
4 was -- there were unforeseen things that they had  
5 faced, and I think in the UK they had talked about  
6 their waste programs with trying to dispose of Magnox  
7 waste.

8                   So with that, that's the -- that's pretty  
9 much the summary. And where I want to go from here is  
10 that when the proceedings do come out, I'm going to --  
11 we're going to look through them and go look for more  
12 detail than the kind of things I've talked today  
13 about, and see what we can mine out of those to  
14 incorporate into the lessons learned effort that we're  
15 currently -- that we currently have underway with our  
16 other stakeholders like NEI and fuel cycle facility  
17 form. And you've heard about that; that's the one  
18 that Rafael Rodriguez is heading up internally here.

19                   So we're going to try to pull some --  
20 review those and see what we can mine out of the  
21 proceedings as they -- when they become available.

22                   So that concludes the presentation. I'll  
23 note that there were -- in addition to the invited  
24 papers that were presented at the conference, there is  
25 also a list of -- a number of contributed papers that

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1 were bound and put into a volume. So if anybody is  
2 interested in reading some contributed papers, there  
3 is -- they are compiled into a bound volume here by  
4 the IAEA.

5 So I think that concludes my presentation.

6 MEMBER CLARKE: Drew, thank you. I would  
7 encourage you to do that, to mine that information.  
8 We're interested in a number of things, as you know,  
9 and we're interested in pulling many of these things  
10 together in an integrated way.

11 I was wondering if the link had been made  
12 by any of the presenters from decommissioning to  
13 designing new facilities. Was there any discussion  
14 about how you factor lessons learned into best  
15 practices?

16 MR. PERSINKO: You know, I think it was  
17 mentioned, but I don't remember any of the specifics  
18 on, this is the lessons learned on how to do that.  
19 But it was mentioned, that we need to --

20 MEMBER CLARKE: About the legacy sites,  
21 those kinds of --

22 MR. PERSINKO: -- that we need to factor  
23 this into new designs. But I said I don't remember --  
24 I don't know that specifics were even talked about.  
25 But it was mentioned, it was noted as well. That is

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1 one aspect, as you know, that we here at NRC are doing  
2 within our rulemaking right now.

3 MEMBER CLARKE: Questions from the  
4 Committee? Bill?

5 MEMBER HINZE: Well, Drew, I'm kind of  
6 interested, particularly in your small facilities, and  
7 especially universities. Could you expand a bit on  
8 lessons learned about research reactors in  
9 universities and the problems and the lessons learned  
10 from them that we have here in the States as well as  
11 in other countries?

12 MR. PERSINKO: Yes, I recall that there  
13 were discussions about hospitals at the small  
14 facilities. Also, it included laboratories. There  
15 were also laboratories discussed in the small  
16 facilities. And although research and test reactors  
17 are included in that topic, I don't remember any  
18 particular points that applied just to them. I'm  
19 trying to think here.

20 MEMBER HINZE: Well, you gave a paper  
21 on --

22 MR. PERSINKO: Well, I gave a paper  
23 basically on the grading, and the grading was  
24 basically the six grades that -- the six categories  
25 that are in the NUREG-1757, and how if you meet

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1 certain conditions you don't have to do an EIS, you do  
2 an EA instead, or -- but it didn't break it out into,  
3 say, okay, the RTRs fall into this category.

4 In fact, RTRs I guess would fall into a --  
5 they would fall into what's a Group 3, I imagine, 3 or  
6 possibly 4, since they are -- they do have a  
7 decommissioning plan put together. But the RTRs are  
8 graded, as I see it, in a sense is that their  
9 decommissioning plans are usually less detailed than  
10 other facilities, and that's my understanding.

11 MEMBER HINZE: Well, didn't -- you know,  
12 my university has a reactor, and my -- and I'm always  
13 wondering what they're going to do when they  
14 decommission it, whether they have a plan, and I  
15 understand that, what was it, University of Missouri  
16 at Rolla recently decommissioned a reactor, and I'm  
17 wondering, are there any lessons learned from that?  
18 Are there any special problems associated with  
19 university reactors?

20 MR. PERSINKO: Off the top of my head, I'm  
21 not aware of any specific problems. I know -- no, I'm  
22 not aware of any specific problems. I know that there  
23 are I think -- well, there was two cases. I think  
24 once I was -- I understood there was a case of one  
25 reactor where they had real difficulty trying to

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1 remove a concrete pedestal, and the concrete -- and  
2 they finally -- they started off small, and they  
3 brought in jackhammers trying to take out the concrete  
4 pedestal with jackhammers.

5 And after a week of beating on it with  
6 jackhammers, they decided that wasn't working, and so  
7 then they brought in a machine to bring it out -- to  
8 chop it up, to break it up, and it worked very well.  
9 But I don't know that that's specific to a research  
10 reactor. That's just --

11 MEMBER HINZE: Was there any lessons that  
12 you retrieved from this meeting on the basis of the  
13 regulations regarding decommissioning and how that  
14 impacted the whole decommissioning process from one  
15 country to the other? Other than translations.

16 (Laughter.)

17 MR. PERSINKO: That was an interesting  
18 one, yes. That was -- it was translations, but it was  
19 also, yes, just coordination, too.

20 Yes, I walked away I guess thinking that  
21 all in all I thought, you know, we in the States  
22 anyway have a fairly good set of regulations that  
23 sometimes we may take for granted that other countries  
24 may not have.

25 And with funding, for example, we have

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1 financial assurance regulations that owners meet, and  
2 that's not the case in all the countries out there,  
3 and that's why I think there are problems with funding  
4 in other countries, more so I think than what we have  
5 here. So that's one aspect, I think.

6 I know I got a lot of interest in the  
7 grading. There is interest in the grading and how we  
8 grade from smaller facilities to larger facilities and  
9 less complex to complex. So although that's not our  
10 regulation, that's our guidance document, and I think  
11 a lot of people were interested in our guidance  
12 document, too, because we -- that was one of the  
13 purposes of my talk was to make other countries aware  
14 of this document.

15 And I think there were a number of  
16 countries that were not aware of it, and so I think we  
17 have a good system of grading, we have financial  
18 assurance regulations to try to prevent future legacy  
19 sites, and I think that's non-existent in all of the  
20 other countries.

21 MEMBER HINZE: A final question that may  
22 not be totally germane to the topic here, but what  
23 about the countries like Sweden, Switzerland, Germany,  
24 that are getting out of the nuclear power business, do  
25 they have a rush to decommissioning going on? What's

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1 the status of that whole activity? And is that in any  
2 way impacting the decommissioning?

3 MR. PERSINKO: I know there are  
4 presentations by Germany, and there was a presentation  
5 by a fellow from Switzerland. But I don't know that  
6 -- I didn't detect anything out of the ordinary. You  
7 know, nothing that I remember from that.

8 MEMBER HINZE: Thank you very much.

9 MEMBER CLARKE: Thanks, Bill.

10 Ruth?

11 MEMBER WEINER: I hesitate to correct my  
12 esteemed colleague on the right here, but it's the  
13 University of Michigan reactor that was recently  
14 decommissioned. The one at Rolla is --

15 MEMBER HINZE: It's about time.

16 (Laughter.)

17 MEMBER WEINER: The one at Rolla is going  
18 strong, yes. I --

19 MEMBER HINZE: Okay.

20 MEMBER WEINER: -- and a very nice  
21 teaching reactor. It is --

22 MEMBER HINZE: I was just checking to see  
23 whether you were --

24 (Laughter.)

25 MEMBER WEINER: He always gets the last

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1 word. This is on a transcript, Dr. Hinze.

2 I have a question for you. I believe  
3 Rocky Flats was the first DOE site, the first federal  
4 site in this country that was considerably  
5 contaminated and that has now been released to the  
6 public. It is completely released. Are there any  
7 lessons learned from Rocky Flats? Has there been any  
8 follow up of how that -- the acceptability of that  
9 site -- did anybody talk about that at the conference?

10 MR. PERSINKO: Not specifically. I mean,  
11 they talked about it in the sense that the speaker I  
12 mentioned, Frazier Lockhart, spoke in the technology  
13 section of the session. So he did speak about Rocky  
14 Flats, but from a technology point of view. And I  
15 remember him talking about starting simple and don't  
16 try to be too complicated right from the beginning.

17 They found out that they could get a lot  
18 more done if they started simple and worked their way  
19 up, and not to, like I said, start developing some  
20 grandiose, engineered-type solutions that may take a  
21 long time to deploy. And that was his -- I think the  
22 point of his paper, and he had some -- I remember some  
23 pictures in his conference that were very good. But  
24 that was his point, as I remember.

25 As far as the other lessons learned, you

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1 know, the -- at the conference, no, there was nothing  
2 that I remember specifically to Rocky Flats. That was  
3 Frazier's --

4 MEMBER WEINER: That was -- yes.

5 MR. PERSINKO: -- Frazier's point. But I  
6 do know that we do have in our -- apart from the  
7 conference, in our lessons learned group -- working  
8 group we have that we do have a Department of Energy  
9 representative on our group, and it has recently been  
10 changed. In fact, it's kind of interesting, one of  
11 the people who was at this conference from DOE is the  
12 person who is now on our group. I met him at the  
13 conference in Athens rather than over here. So they  
14 are involved with us.

15 Now, I do know that they have some lessons  
16 learned. But when we look at them, not all of them,  
17 but some of them, you know, they are pretty specific  
18 to the DOE complex, but -- because of the kinds of  
19 material DOE deals with versus what we deal with.  
20 So --

21 MEMBER WEINER: Yes, that's an interesting  
22 comment, because you wonder -- these are large  
23 decommissioning efforts, and complex decommissioning  
24 efforts, and you wonder how generally applicable they  
25 are. Was there anything -- was there any discussion

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1 about decommissioning an arid site as distinct from a  
2 site where you have -- a more humid site where you  
3 have a lot of rainfall?

4 MR. PERSINKO: Not that I recall. No, I  
5 don't remember that.

6 MEMBER WEINER: Have most of the  
7 international -- has most of the experience been with  
8 relatively arid sites, or does it just vary all over  
9 the map?

10 MR. PERSINKO: I don't know the answer  
11 specifically to that question. I'm guessing it would  
12 vary. There are people from Eastern Europe, I mean,  
13 all the way from Eastern Europe to Cuba to -- so they  
14 are all over the world. So I think it varies. I  
15 don't think it was specific to anyone.

16 MEMBER WEINER: And I just want to echo  
17 Dr. Hinze's comment about small sites and  
18 universities. There have been a number of university  
19 reactors decommissioned, and I have no idea what the  
20 problems associated with those area, because these are  
21 generally in the middle of a campus where there is a  
22 lot of traffic.

23 CHAIRMAN RYAN: I think, you know, many of  
24 them are self-contained, though, Ruth. There really  
25 aren't any environmental issues.

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1 MR. PERSINKO: I was going to say,  
2 generally speaking, I don't think there has been that  
3 many problems with --

4 MEMBER WEINER: That's good to know.

5 MR. PERSINKO: -- reactors on campuses.  
6 I'm trying to recall. And now that you mention  
7 Michigan, I know, because we're responsible for  
8 Michigan, you know, our group has recently taken over  
9 the decommissioning of the research and test reactors.  
10 They were transferred to our group from NRR back in  
11 October, so we are now the project manager there.  
12 Michigan is on the cusp I think of being  
13 decommissioned or being terminated.

14 But I don't know of any specific problems.  
15 I'm thinking back what I know of the sites that are in  
16 our group. I think we have like 14 on our plate right  
17 now. And, you know, they seem to be going pretty  
18 smoothly, so --

19 MEMBER WEINER: Thank you.

20 MR. PERSINKO: By the way, I used to work  
21 at Rocky Flats.

22 MEMBER WEINER: Oh.

23 MEMBER HINZE: If I may, you know, one of  
24 the problems is that most universities that I'm  
25 familiar with are -- do not have contingency funds.

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1 And I --

2 MEMBER WEINER: That's correct.

3 MEMBER HINZE: You know, and so where they  
4 provide the funding for these into the future I just  
5 wonder about.

6 MEMBER CLARKE: Ruth, if I can just --

7 MEMBER WEINER: Yes, that's --

8 MEMBER CLARKE: -- and then we need to --

9 MEMBER WEINER: No, I'm done.

10 MEMBER CLARKE: -- keep moving. But Rocky  
11 Flats, as you know, is now a wildlife preserve --

12 MEMBER WEINER: Yes.

13 MEMBER CLARKE: -- operated by Fish and  
14 Wildlife, and it's the equivalent of a -- it's not a  
15 license, but it's a durable control, I think you would  
16 agree, since it's a government-owned facility.

17 Mike, any --

18 CHAIRMAN RYAN: I'm sorry. I had to duck  
19 out for another matter, and I appreciate it. But no,  
20 I'm fine, thank you.

21 MEMBER CLARKE: Allen?

22 VICE CHAIRMAN CROFF: Was there much, if  
23 any, discussion of decommissioning reprocessing plants  
24 at the conference?

25 MR. PERSINKO: Such as what? Do you mean

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1 fuel reprocessing plants, is that what you --

2 VICE CHAIRMAN CROFF: Yes, spent fuel  
3 reprocessing plants. Maybe something from France,  
4 Sellafield, anything going on there?

5 MR. PERSINKO: You know, the French --  
6 but, you know, the French spoke, and I said I don't  
7 think there is -- you know, the lessons learned that  
8 came across, I think the France one that I remembered  
9 was the one about the internal authorization approach.  
10 So I don't think that's specific to a reprocessing  
11 plant. I think that's decommissioning in general in  
12 France with the French regulations.

13 VICE CHAIRMAN CROFF: Okay.

14 MR. PERSINKO: I don't remember anything  
15 specific to reprocessing there.

16 VICE CHAIRMAN CROFF: Okay. Thanks.

17 MEMBER CLARKE: Okay. Drew, thank you.

18 MR. PERSINKO: Thank you.

19 MEMBER CLARKE: Mike, I'll turn it back to  
20 you. I think Allen has the next one.

21 We have somebody on the bridge, don't we?

22 VICE CHAIRMAN CROFF: Yes. We probably  
23 need to take a moment. Theron, it's time to get Mike  
24 Bell again, if you could.

25 (Pause.)

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1                   VICE CHAIRMAN CROFF: Hello, Mike. This  
2 is Allen Croff. Can you hear me?

3                   MR. BELL: Yes.

4                   VICE CHAIRMAN CROFF: Okay. We're just  
5 ready to get started with the DS 390 part of this  
6 thing.

7                   MR. BELL: Okay, great.

8                   VICE CHAIRMAN CROFF: Okay. Our second  
9 speaker on this -- on IAEA activities is Chris  
10 McKenney, Acting Branch Chief for the Performance  
11 Assessment Branch in the Office of Federal and State  
12 Materials and Environmental Management Programs.  
13 Chris participated in a technical meeting at the IAEA  
14 on a waste classification guidance document. He's  
15 going to brief us on the guidance document and the  
16 NRC's review of that document.

17                   We may need to close a portion of this  
18 meeting, if we discuss aspects of the guidance  
19 document and the technical meeting, which are  
20 considered to be confidential. We'll ask any members  
21 of the public to leave for that closed portion of the  
22 meeting, if it should arise.

23                   And given the questions I suspect this  
24 Committee is going to want to ask, I suspect it  
25 probably will, but we'll face that a little later.

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1 Chris, go ahead.

2 MR. McKENNEY: Okay. Thank you. Yes, our  
3 new designations are quite a mouthful.

4 Last July was -- the IAEA issued DS -- a  
5 revision to DS 390 in which they -- well, actually,  
6 they issued a draft 390, because there was no 390  
7 before. It's the new designation for the previous way  
8 they have numbered the safety guidance previously.

9 But it's basically a revision of the  
10 current IAEA waste classification system, and I'll  
11 first go over that, and then the proposed -- what was  
12 in DS 390, and then a short discussion of the waste  
13 classification with NRC, sort of how they go to the  
14 two different types.

15 The current IAEA classification is in the  
16 Safety Guide 111-G-1.1, which is 1994. It predates a  
17 lot of documents and processes that IAEA has sort of  
18 changed their frameworks on how to do their numbering  
19 system and what -- the order on which information is  
20 in safety guides versus safety reports versus safety  
21 fundamentals.

22 And it also, most importantly, for waste  
23 classification it predates the Joint Convention  
24 between the nations on waste, so -- which established  
25 various classes that all the nations who are members

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1 of the Joint Convention report on.

2 And also it predates, of course, which was  
3 mentioned at the previous meeting, the safety guide on  
4 clearance and exclusion and exemption that was issued  
5 in 2004.

6 The current IAEA waste classification had  
7 basically three broad categories, and the -- one which  
8 was exempt waste, one which was high-level waste, and  
9 then everything else, which was low-level waste, which  
10 is between those two boundaries. And inside the low-  
11 level waste boundaries there was some divisions by  
12 half-life that some country has used to designate some  
13 classifications of waste.

14 Other people dealt with -- that's where  
15 some people had the intermediate low-level waste for  
16 national things, but there was no specific actual  
17 category in the IAEA classification or a separate  
18 category for ILW. It was just a subcategory of low-  
19 level waste that some people used.

20 And so they decided that they wanted to  
21 break out some stuff, and they wanted to have a  
22 general system of classification that's based on the  
23 long-term safety considerations of the waste, not what  
24 does it have to do to be disposed of, what is it in 30  
25 years, but, really, the long-term considerations of

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1 waste disposal, and classifying based on those long-  
2 term safety considerations.

3           They wanted to assist development and  
4 implementation of waste strategies consistent with the  
5 Joint Convention. Facilitate communication and  
6 information exchange. You had, again, this very broad  
7 category of low-level waste. You had lots of people  
8 having subcategories on that, and everybody's  
9 subcategories differed slightly in large -- or even in  
10 completely what they meant by the different types of  
11 waste.

12           They wanted to identify boundaries and  
13 provide quantitative guidance, and they obviously  
14 wanted to update their previous safety guide to be  
15 consistent with the new hierarchy of guidance from the  
16 -- from IAEA.

17           The 390 waste classification scheme has  
18 now -- as the draft had, has six waste  
19 classifications, one which is exempt waste, which  
20 actually includes clearance and excluded waste, very  
21 short-lived waste, very low-level waste, low-level  
22 waste, intermediate-level waste, and high-level waste.

23           The draft DS 390 included both manmade and  
24 natural radioactivity in the scheme, or it was --  
25 there is no differentiation. Most types of norm were

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1 thrown in as part of the definition of low-level  
2 waste. Generally, the categories and descriptions of  
3 them as -- for having both a bit more risk-based that  
4 -- if it's -- that the type of facility you should go  
5 to is more -- based on its risk than really its  
6 origin, a la if it comes from a powerplant it goes to  
7 a low-level waste site. If it's from a silver mine it  
8 gets disposed as mill -- as silver metal tailings  
9 under some other chemical concern.

10 They included an interesting example of  
11 the drawing of what they visualized. The sort of --  
12 how to break out these categories by -- with half-life  
13 and some other things. Actually, the -- all of the  
14 letter-numeric dots on there are for different types  
15 of sealed sources. They are going through an example  
16 where this picture is.

17 They had two graphs, but actually the  
18 first graph in the document was flawed in the first  
19 place, and was misprinted wrong. And this is actually  
20 the one that was closer to what they meant.

21 As you see, there is -- there could be a  
22 lot of discussions about how hard these lines are and  
23 how -- or how fuzzy and what it means to be near the  
24 border of each. And a lot of assumptions went into  
25 the various edges of the classification and the talks

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1 about it, like, you know, the very short-lived waste  
2 is considered to be waste that could decay down to  
3 clearance levels, that has a half-life of about 100  
4 days.

5 And the very low-level waste is activities  
6 that are slightly above the clearance values, and you  
7 usually associate it with like large amounts of  
8 material and stuff, which are -- there are -- France  
9 and a couple of other countries already have very low-  
10 level waste facilities that have been developed which  
11 involve less robust engineering than a normal low-  
12 level waste site, because they don't expect that much  
13 environmental risk from the material being disposed  
14 there. So, correspondingly, you can do less  
15 engineering or less requirements of wasteform.

16 And then, the low-level waste was  
17 considered to have mostly short-lived materials with  
18 very small amounts of long-lived materials.  
19 Basically, that the radiation hazard or risk of the  
20 site would reduce within the first 300 years, so that  
21 your long-term control to avoid intruder dose or  
22 intruder risks would only be really important over the  
23 first 300 years.

24 And then, if the material was -- the waste  
25 volume and length of time and risk levels were such

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1 that you had to contain it for more than 300 years,  
2 the material basically would fall into either  
3 intermediate-level waste or high-level waste.

4 And that break is -- generally, part of it  
5 is somewhat a heat generation term or what --  
6 intermediate-level waste is generally described as  
7 material not having to have any heat controls on the  
8 waste type.

9 Although the fuzziness between -- even in  
10 the draft 390 between what is intermediate-level waste  
11 and what is high-level waste was -- it was very vague  
12 on what would actually make the difference if you were  
13 talking about reprocessed -- if you were talking  
14 reprocessing waste. You know, which would it break  
15 down into -- intermediate- or high-level waste?

16 And so -- and then, of course, and this  
17 picture is also -- the one reason I wanted to use this  
18 one is it includes a drawing of the -- where does the  
19 NORM potentially fit into here of a thing? And that  
20 NORM can -- NORM could be really classified into,  
21 depending on its activity levels, many of these  
22 classes, although in the definitions they put it  
23 pretty much in low-level waste.

24 While in some countries you could have  
25 mill tailings that are consistent with risk levels and

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1 activity levels of intermediate-level waste, such as  
2 in Canada or -- and we wouldn't see anything near  
3 those risk levels in our country, but Canadian mill  
4 tailings is -- does need probably stronger controls  
5 than ours, so -- our deeper disposal, which is what  
6 they're considering. but that's basically this scheme  
7 that they brought -- that they suggested.

8 And we have this visualization that we are  
9 trying on specific radioactivity and stuff, and  
10 basically our classes, you know, are -- the  
11 classification of NRC realms, and, of course, really  
12 when we're talking about the comments here we're not  
13 talking about NRC comments only.

14 There is also Department of Energy issues  
15 and comments, because like the wording on whether  
16 spent fuel is high-level waste or not is a -- you  
17 know, we're like if it's described as -- if it's  
18 decided to be waste, then it is part of high-level  
19 waste. And if it's not, then it's still a resource,  
20 and, therefore, it doesn't fall under the  
21 classification scheme, and that's one of an issue  
22 between Department of Energy and us of what we almost  
23 -- are used to talking about.

24 When we mention spent fuel, a lot of times  
25 with civilian reactors we're usually talking about

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1 they've already been classified as waste, we view it  
2 as waste. There are parts of DOE that view spent fuel  
3 as still a resource, so for them it's not a waste yet,  
4 by default.

5 And our class -- because the United States  
6 doesn't have any clearance -- any generic clearance or  
7 very low-level standards in place. Both those  
8 categories are pretty much within our Class A. Class  
9 B and C are still within the low-level waste -- what  
10 would be in the low-level waste categories of the IAEA  
11 standards.

12 The GTCC could or could not, depending on  
13 the design of the facility, the facilities attributes  
14 may be -- may fall under the classification similar to  
15 the intermediate-level waste, but it may still fall  
16 under low-level waste, depending on the design of the  
17 facility and location, and some other characteristics,  
18 like how much GTCC are we talking about per facility.

19 Uranium mining and milling, of course, is  
20 -- we use low-level waste -- we use near-surface  
21 disposal facilities because of practicality concerns  
22 mostly, and other things. I mean, the -- while its  
23 environmental risks may be similar to Class A, it  
24 never -- its intrusion risks never change. They are  
25 pretty much the same intrusion risk -- or consequence.

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1           If there was an intrusion on day one of a  
2 uranium mill tailing site, as much longer in time,  
3 it's -- versus Class A and other low-level waste, it  
4 tends to have intrusion risks much higher at the  
5 start, and then they decay as -- decay with time.

6           And then, of course, we have soils that  
7 fall into low Class A, and NORM and TENORM is within  
8 the realm in the United States of percentages of same  
9 sort of levels of risk, or radioactivity and risk.

10           But that's where the U.S. would fall under  
11 the characterization. The staff reviewed and provided  
12 comments on the document, but most of those specific  
13 comments are under confidentiality because of the way  
14 that IAEA comments are held by the country.

15           VICE CHAIRMAN CROFF: Okay. Let's start  
16 with some questions. Jim?

17           MEMBER CLARKE: Thanks, Chris. Can we go  
18 back to the slide before that one? Yes. I was  
19 interested in your -- you know, this may not be a fair  
20 question, and you may not have gotten into it. But  
21 you said there is a distinction between engineered  
22 controls, between the very low-level waste and the  
23 low-level waste.

24           MR. MCKENNEY: Right.

25           MEMBER CLARKE: And this is near-surface

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1 disposal. Is the distinction comparable to a  
2 Subtitle C versus a Subtitle D?

3 MR. MCKENNEY: In concept, yes. In  
4 concept, yes. They're looking at -- well, even in  
5 low-level waste, we can compare it to what they're  
6 talking about in France of -- you know, they're  
7 talking about very short -- you know, not necessarily  
8 requiring the same level of governmental control  
9 afterwards, not, you know, if -- it would be sort of  
10 -- in a similar vein to us, it would be like instead  
11 of requiring, you know, 100 years of maintenance  
12 and/or monitoring and everything else for this thing,  
13 we'd be looking at 30 years, we'd be looking at  
14 possibly, you know, not as much engineer cover for  
15 intrusion, because intrusion isn't really even an  
16 issue, and some other things like that.

17 So, yes, it is sort of like a cross  
18 between a --

19 MEMBER CLARKE: Real design differences.

20 MR. MCKENNEY: Right. Real design  
21 differences, and, you know, for France it's -- there's  
22 a distinctive difference, from a low-level waste site  
23 to basically big concrete monoliths, and then they've  
24 got this very low-level waste facility that is  
25 basically coming in with large volumes of stuff and

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1 just being put in a landfill design, and not grouted  
2 over. So that's just a -- especially for France,  
3 that's a large distinction and difference.

4 MEMBER CLARKE: Thanks.

5 CHAIRMAN RYAN: Chris, those two graphs  
6 are -- I mean, the two figures are really interesting,  
7 and maybe we could switch to the NRC visualization.  
8 That is an interesting one, too. You know, you've  
9 lined them up pretty well.

10 It strikes me that there's a dimension, or  
11 maybe even two, that's missing.

12 MR. MCKENNEY: Unfortunately, when you're  
13 talking low-level waste, it goes --

14 CHAIRMAN RYAN: And let's just talk about  
15 them. I know you know this, so this isn't a surprise.  
16 One is all of these figures, both are concentration-  
17 based.

18 MR. MCKENNEY: Right.

19 CHAIRMAN RYAN: And that's only one metric  
20 of risk. Quantity is also a metric of risk, as you  
21 well know, so 200 Becherels per gram of -- gram is a  
22 whole lot different than 200 Becherels per gram of  
23 600,000 tons. So quantity somehow has to be a  
24 dimension.

25 The next dimension is -- and we've run out

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1 of dimensions in regular space, so I guess we're in  
2 trouble. You know, the third dimension is -- or  
3 fourth is the -- let me just summarize it and say the  
4 releasability or the dispersability or the ease with  
5 which the radioactive atoms can move into the  
6 environment.

7 So it's wasteform, it's waste packaging,  
8 it's, you know, the French monoliths versus, you know,  
9 shove it off the back of a truck, all those  
10 differences. And how do we -- or how does the IAEA  
11 deal with all of that?

12 MR. MCKENNEY: In the current one, a lot  
13 of -- all those issues are almost assumed in the way  
14 that they wrote their vague definitions of waste  
15 classification. Like the writers of the 390 had sort  
16 of a vision of what the performance of a --  
17 performance range of a low-level waste site might be,  
18 although it's not articulated that well as to what is  
19 really meant to be there.

20 I mean, they mentioned that small amounts  
21 of long activity waste could be in there, but how much  
22 are you meaning exactly? Obviously, all those  
23 assumptions were something we wrestled with when we  
24 developed A, B, and C classifications anyways in  
25 Part 61.

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1 CHAIRMAN RYAN: Sort of.

2 MR. MCKENNEY: Well, there was -- yes,  
3 but, I mean, it was -- the classifications are based  
4 on a set of assumptions of volume.

5 CHAIRMAN RYAN: One set.

6 MR. MCKENNEY: Yes, I know that.

7 CHAIRMAN RYAN: Yes.

8 MR. MCKENNEY: And four different types of  
9 facilities.

10 CHAIRMAN RYAN: Fair enough.

11 MR. MCKENNEY: And regional facilities and  
12 -- but -- and we obviously -- a facility that is  
13 designed to make their own classification system.  
14 But, yes, there is all of these dimensionalities that,  
15 really, it doesn't take in. It's the -- it's a  
16 vertical slice through it.

17 It makes an assumption almost on all of  
18 these other factors, these figures do generally, of  
19 what classification things would fall into, because  
20 then you come down to, you know, trying to display a  
21 coherent system in that sort of --

22 CHAIRMAN RYAN: Right.

23 MR. MCKENNEY: -- regulatory realm is  
24 hard. And then, coming up with -- which some  
25 countries would probably be interested in, which is,

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1 you know, hard numbers. Where does one classification  
2 end and one -- where does one -- another class ended?  
3 And you've got countries that range from, you know,  
4 very either tropical, arid, or temperate. And the  
5 performance levels of even similar designs is just  
6 incredibly different in each of those facilities.

7 So trying to say what is a hard number for  
8 the internationals on every one of these things is --

9 CHAIRMAN RYAN: But do they do a good job  
10 of laying out exactly what you've just said?

11 MR. MCKENNEY: Not in draft 390, no.

12 CHAIRMAN RYAN: I mean, I -- and maybe  
13 that's an area for comment.

14 MR. MCKENNEY: Yes.

15 CHAIRMAN RYAN: Because I think that's  
16 really -- I mean, there are, as we've pointed out in  
17 the recent letters, you know, the 61.58 allows the  
18 Commission, upon request through its own initiative,  
19 to develop alternate systems of classification. It  
20 doesn't say different concentration values. It says  
21 alternate systems of classification.

22 MR. MCKENNEY: Well, basically, they  
23 wouldn't -- that site would have both a generic A, B,  
24 C, but then it would have 1, 2, 3, or 5, 6, 7,  
25 whatever classification system it wanted that was

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1 site-specific design. It's similar to our -- what we  
2 do in decommissioning.

3 CHAIRMAN RYAN: Yes. And the point is is  
4 that risk-informing it has to take into account these  
5 other dimensions.

6 MR. McKENNEY: Right, right. No. Any  
7 analysis for 61.58 would have to take into account the  
8 site's performance versus for various radionuclides  
9 the types of wasteforms it would be accepting those  
10 radionuclides in, the volumes, and all those sort  
11 of --

12 CHAIRMAN RYAN: Yes, all of that, yes.

13 MR. McKENNEY: -- characteristics would be  
14 used to, then, develop back into a new -- into a site-  
15 specific classification system.

16 CHAIRMAN RYAN: And I guess I'm curious if  
17 you see this standard-setting activity going in that  
18 direction or not.

19 MR. McKENNEY: This is a real high-level  
20 document, so it's hard to get into too much of that  
21 detail. They are doing a lot of other safety guides  
22 on like managing NORM residues, another one on waste  
23 technologies of everything up and to how to develop  
24 wasteform and other things. This doesn't really go  
25 into waste acceptance criteria, which is the only --

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1 CHAIRMAN RYAN: Yes, but that's too fine  
2 of a detail. I'm just -- does it even recognize these  
3 principles of other dimensions?

4 MR. MCKENNEY: It does mention them.

5 CHAIRMAN RYAN: Sort of, but--

6 MR. MCKENNEY: Sort of, but not --

7 CHAIRMAN RYAN: From the look on your  
8 face, I'm guessing you're not real satisfied that it's  
9 enough.

10 MR. MCKENNEY: No, I wasn't really  
11 satisfied on it coming from base principles. It was  
12 -- it was a lot more from a personal standpoint. It  
13 came out and said, okay, here's a classification  
14 scheme, this -- here is something that's in very low  
15 activity. Here is something that's on low-level waste  
16 activity, and sort of just generally described the  
17 classes but didn't really go into how they would be  
18 developed or how a country could tweak them for its  
19 own situation. I just didn't feel that was really --  
20 it didn't come from the root principles --

21 CHAIRMAN RYAN: Right.

22 MR. MCKENNEY: -- in development in the  
23 document.

24 CHAIRMAN RYAN: Right.

25 MR. MCKENNEY: That's --

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1 CHAIRMAN RYAN: Well, that's a deficiency,  
2 I would guess. Have you commented on that without  
3 telling -- I don't want to get us off in --

4 MR. MCKENNEY: I can't say that I have.

5 CHAIRMAN RYAN: Okay. All right.

6 Giorgio?

7 MR. GNUGNOLI: If I could just make one  
8 little slight elaboration. If you look at -- if you  
9 had to come up -- this is Giorgio Gnugnoli from FSME.  
10 If you had to come up with a short buzz word to  
11 explain the difference between the current version  
12 that's published versus the one that's being proposed,  
13 it said it went from perhaps a more origin-based  
14 categorization of waste to a more disposal strategy-  
15 based.

16 It is -- maybe the best way to think about  
17 it is this is a slow movement or evolution by the IAEA  
18 to go from, let's say, a more traditional performance  
19 approach to one that addresses perhaps the risk of the  
20 material once it's in place and whatever strategy is  
21 used. When they --

22 CHAIRMAN RYAN: Having covered these other  
23 dimensions of wasteform packaging, you know,  
24 engineered barriers and all of that, then they haven't  
25 accomplished that goal that you just discussed.

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1 MR. GNUGNOLI: Well, that's true. But if  
2 you look -- if you step back and look at the IAEA's  
3 approach towards dealing with waste management, you  
4 can almost see that the publication process is very  
5 similar to what's going on in the categorization  
6 approach. So for things that would be greater than  
7 Class C, that would be inappropriate for near-surface  
8 disposal, they are now looking at intermediate or deep  
9 bore hole disposal as a strategy.

10 So if you look at what the IAEA is doing  
11 in laying out its publication guidance, it's sort of  
12 -- it's sort of reflected as a risk- or dose-based  
13 approach, but through the means of a disposal strategy  
14 rather than what's the dose to so and so, or what's  
15 the dose because --

16 CHAIRMAN RYAN: Who is using deep bore  
17 holes?

18 MR. GNUGNOLI: Hmm?

19 CHAIRMAN RYAN: Who is using deep bore  
20 holes?

21 MR. GNUGNOLI: Well, they're basically  
22 talking about intermediate bore hole disposal for some  
23 of the sources that are greater than Class C, kind of  
24 ILW. But then, if -- you know, if you're talking  
25 about something that might as well be treated as a --

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1 in the same risk category as high-level waste or spent  
2 fuel, they will talk about the geologic disposal of  
3 ILW.

4 CHAIRMAN RYAN: And I think that's a risk,  
5 because if it's just based on concentration of a  
6 highly concentrated sealed source like -- you know,  
7 pick an isotope that you want to talk about, that may  
8 or may not be risk-informed.

9 MR. MCKENNEY: No, that's -- I mean --

10 CHAIRMAN RYAN: And my guess is probably  
11 not.

12 MR. MCKENNEY: Well, even if we go back to  
13 the one -- there was some discussion, like on this  
14 one, with examples for sealed sources where you have  
15 similar levels of radioactivity that actually fall  
16 into things of different classifications. And like  
17 the short-lived material and -- for A2 on the slide is  
18 fairly much similar activity levels as the B2, but --

19 CHAIRMAN RYAN: Let's be specific. It's  
20 only based on concentration.

21 MR. MCKENNEY: I know. This one right now  
22 in -- it's somewhat based also on half-life of risk.

23 CHAIRMAN RYAN: Okay. But, you know, if  
24 you take 1,000 curies of something and you have it in  
25 some volume of -- you have something in soil, big

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1 volume, that's one profile of risk.

2 MR. MCKENNEY: Right.

3 CHAIRMAN RYAN: If you have it in a sealed  
4 source, in a welded stainless steel capsule, in a  
5 concrete barrier, in a 55-gallon drum, in an 80-gallon  
6 overpack, you know, you get to a much different view  
7 of that same activity or concentration.

8 MR. MCKENNEY: I understand that mostly  
9 volume was not well articulated in the current method.

10 CHAIRMAN RYAN: So that would be a real  
11 weakness in my view of the system.

12 Bobby?

13 DR. ABU-EID: This is Bobby. Just, I  
14 would like to let you know, if we look at the DPP of  
15 developing DS 390, which is the document preparation  
16 profile for this standard, which was actually in  
17 June '04 -- it's about, you know, more than two and a  
18 half years -- I think they listed the objectives for  
19 developing the DS 390.

20 And if we try to analyze the objectives  
21 and know exactly what is the objective, so we know  
22 exactly what is the basis for the classification --  
23 and they said the main objective is implementation of  
24 appropriate waste management strategy. That's really  
25 the focus, and that's the reason they have the

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1 subcategories in the waste, in the low-level waste  
2 specifically, is for waste management strategies.

3 And they emphasize the priority of  
4 disposal and also for disposal -- is how to manage  
5 actually the waste, so that's really the focus for  
6 this waste classification.

7 CHAIRMAN RYAN: Yes, that's good  
8 information, Bobby. Thank you. But, again, I would  
9 add my own view is is that for those exact goals it  
10 should clearly have these other dimensions of  
11 wasteform packaging and disposal engineered features,  
12 as well as concentration.

13 DR. ABU-EID: Definitely, I agree with  
14 you, but I think with IAEA standards they do not go  
15 through lots of details as we go and we develop our  
16 regulations and standards. We have NUREGs to support  
17 the analysis. We have lots of analysis to do before  
18 we go there, and that's why if you look at the 10 CFR  
19 Part 61 table it was supported somehow -- you know,  
20 the basis for the classification and performance to  
21 meet certain performance objectives.

22 Here, in this case, they look at it in  
23 more generic way rather than specific way.

24 CHAIRMAN RYAN: No, I appreciate that, but  
25 I think they've left out a couple of key things in the

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1 generic assessment.

2 DR. ABU-EID: Yes.

3 VICE CHAIRMAN CROFF: Ruth?

4 MEMBER WEINER: Could you go back to your  
5 other slide? Is there an international view on the  
6 question of transuranic waste? Because if you look at  
7 transuranic waste, there was a very specific  
8 definition in the United States for the waste  
9 isolation pilot plant. Most of it is low-level waste,  
10 and what isn't low-level waste is high-level waste  
11 actually. It's the same stuff. So I just -- I'm  
12 surprised to see it on your chart.

13 MR. McKENNEY: Well, remember, this is for  
14 the NRC or U.S. sort of characterization, and why we  
15 have TRU versus not necessarily everybody else. And  
16 as we would designate that just because we disposed of  
17 it similar to what would be defined now as IAEA  
18 intermediate-level waste or high-level waste or  
19 geologic, it doesn't -- it is not necessarily that.

20 MEMBER WEINER: That's true.

21 MR. McKENNEY: Because, as always, you can  
22 always over -- you can always overdispose of  
23 something, you know, beyond its risk level, such as  
24 Germany is going to do with all of its waste  
25 supposedly by policy. TRU is one of those ones where

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1 I think it's -- we have a unique definition in the  
2 world right now of TRU versus other countries about --

3 MEMBER WEINER: Speaking of Germany, was  
4 there discussion -- what's been the experience in the  
5 salt repositories at Ossa and --

6 MR. McKENNEY: Well, we didn't get any  
7 discussions of exact experiences in any of these  
8 issues, really, or those. Just that Germany is  
9 currently doing -- is involved with IAEA in the waste  
10 classification schemes, even though the policy is that  
11 all radioactive waste will be disposed of in geologic  
12 dumps.

13 MEMBER WEINER: Okay. Thank you.

14 VICE CHAIRMAN CROFF: Bill?

15 MEMBER HINZE: A question out of  
16 ignorance. The specific radioactive activity -- is it  
17 a linear scale?

18 MR. McKENNEY: I'm not sure. I think it's  
19 just really --

20 MEMBER HINZE: I see. So it --

21 MR. McKENNEY: It's just a cartoon.

22 MEMBER HINZE: Well, my ignorance question  
23 is: what's the use of B?

24 MR. McKENNEY: The sue of B? Well, that's  
25 always a good question. I think it's -- B was -- and

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1 B is always a question of what the category goes to  
2 between B and A.

3 DR. ABU-EID: I think it is --

4 MR. MCKENNEY: B is between A and C.

5 DR. ABU-EID: I think it is the thickness  
6 of the cover that you have for the waste  
7 classification, that you need to have thicker cover  
8 for -- to comply with the performance objectives.

9 MR. MCKENNEY: B and A are both based on  
10 long-term safety.

11 CHAIRMAN RYAN: There is another  
12 dimension. Don't forget protection of the worker. I  
13 might be able to help you here. Sometimes the B gets  
14 into stuff that on the packages' surfaces tends to be  
15 an R per hour up to 10 or 15.

16 MR. MCKENNEY: Well, B did require -- the  
17 difference between B and A is that all of A  
18 theoretically could be in cardboard boxes.

19 CHAIRMAN RYAN: Yes.

20 MR. MCKENNEY: And B has to be in  
21 wasteforms.

22 CHAIRMAN RYAN: Or packages.

23 MR. MCKENNEY: Or packages, yes. It has  
24 to be structurally sound packages, right?

25 CHAIRMAN RYAN: It has to meet the four

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1 criteria for compressor strength, biodegradation,  
2 radiation damage, and so on.

3 MR. MCKENNEY: Right.

4 MEMBER HINZE: It strikes me that A is --  
5 on your scale there, which probably doesn't mean  
6 anything, but Class A is this very long portion of the  
7 scale. And then, you have C, and I understand the  
8 need for that, and then B is just kind of --

9 CHAIRMAN RYAN: B, there's only -- Bill,  
10 B -- Bill and B, there's only one criteria that's  
11 different from B to C, and that's the depth of burial.  
12 Okay? Everything else in terms of structural  
13 stability and all that is the same, except because C  
14 is a higher dose rate and higher concentration  
15 material, it has to be deeper.

16 MEMBER HINZE: And that's based upon a  
17 very definitive change in the radioactivity -- I mean,  
18 the specific activity. It's -- there's no breadth to  
19 those lines between B and C, then.

20 MR. MCKENNEY: Yes, pretty much. But B  
21 and -- B is also defined more for its long-term safety  
22 problem. It's environmental risk of release --

23 MEMBER HINZE: Okay.

24 MR. MCKENNEY: -- for some of the  
25 radionuclides versus C which has much more been

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1 designated -- much more of those radionuclides  
2 designated --

3 MEMBER HINZE: This is getting back to  
4 what Mike was talking about. There are more --

5 MR. McKENNEY: Right. And that's why they  
6 have to be at --

7 MEMBER HINZE: Yes. Okay. Thank you.

8 VICE CHAIRMAN CROFF: Mike, you had  
9 another one?

10 CHAIRMAN RYAN: Let's see. I did.

11 VICE CHAIRMAN CROFF: Senior moment?

12 (Laughter.)

13 Think about it, and let me launch in?

14 CHAIRMAN RYAN: Please.

15 VICE CHAIRMAN CROFF: Okay. I think first  
16 a comment. In reading through the draft from last  
17 fall, I agree with the remark over here, the IAEA is  
18 trying to head in the direction of using disposal  
19 systems as a framework for a waste classification  
20 system.

21 I think in general that's a good thing to  
22 do. But there aren't nearly as many conceptually  
23 distinguishable disposal systems as they have waste  
24 classifications. You know, in very broad terms, you  
25 release it, it's in the near-surface where it's

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1 acceptable, or it's deep. End of story. That's the  
2 way the old system was.

3 I mean, that's sort of the way the U.S.  
4 has evolved, and that's the way the previous IAEA  
5 system was. And whether it's down at 100 meters or  
6 300 meters, you're below the depths of, you know, most  
7 casual drilling, foundations, this kind of stuff. And  
8 whether it's a bore hole or you drill -- you dig a  
9 cave, it's about the same kind of a thing.

10 So maybe in theory where they wanted to  
11 head was okay, but they need classifications and  
12 subclassifications to handle some of these nuances, in  
13 my humble opinion.

14 Getting back to more practical issues  
15 here, a draft was on the table last year. The U.S.  
16 developed comments. You went over and talked to them  
17 about it in early December, as I remember. What is --  
18 and they are presumably revising this thing. What is  
19 happening with it or going to happen with it?

20 MR. MCKENNEY: It will be up --

21 MR. GNUGNOLI: Here's where we close.

22 MR. MCKENNEY: Okay. It will be in the  
23 schedule?

24 MR. GNUGNOLI: Want to discuss the  
25 schedule?

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1 MR. MCKENNEY: That's all I --

2 MR. GNUGNOLI: That's all I'm at so far.

3 MR. MCKENNEY: It's supposed to be up this  
4 spring or early summer on the next -- as all safety  
5 guides are voted for by the various committees that  
6 oversee their apportionments of the IAEA, the WASSAC  
7 Committee for Waste, is going to be meeting this  
8 spring. And that's on their table to vote for either  
9 the -- to publish it or not, the revised version. So  
10 it's on the short --

11 VICE CHAIRMAN CROFF: And there's no --

12 MR. MCKENNEY: And then, it has to go  
13 through another committee after that, I believe, but  
14 it will be voted for this spring.

15 VICE CHAIRMAN CROFF: So there is no plan  
16 for any further comment iterations.

17 MR. MCKENNEY: Not in this version of it  
18 probably.

19 VICE CHAIRMAN CROFF: I'm not sure what  
20 you mean by "this version." I mean --

21 MR. MCKENNEY: Well, I mean, it will come  
22 up for a revision in a few years.

23 VICE CHAIRMAN CROFF: Oh, okay. Okay.

24 MR. MCKENNEY: You know, that's what I  
25 meant.

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1 VICE CHAIRMAN CROFF: Okay. I understand.

2 DR. ABU-EID: I think the process suggests  
3 this goes to the member states comments, and then  
4 after that it could go back to ask for review, and  
5 then, you know, they could provide some more comments  
6 from that.

7 MR. MCKENNEY: That is always an option  
8 for WASSAC is to -- instead of --

9 DR. ABU-EID: Oh, this is --

10 MR. MCKENNEY: Instead of voting it for  
11 approval is to have it do another round of draft. But  
12 at this point, it's in the process, it has went  
13 through one round of draft, and then at that point it  
14 goes to WASSAC for final --

15 VICE CHAIRMAN CROFF: Okay. And what's  
16 your sense of what will happen when -- in this  
17 committee? Will they approve? I mean, is this a  
18 rubber stamp, or do they often reject things?

19 MR. GNUGNOLI: The WASC, as any of the  
20 safety standards committees, have the authority to  
21 approve, approve with conditions or modifications, or  
22 just basically send it back and start over, make  
23 significant modifications.

24 The spring does not currently have this  
25 document on the review schedule for WASC or any of the

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1 safety standards committees. So probably the earliest  
2 time that it will show up will be in the fall of 2007.

3 VICE CHAIRMAN CROFF: So there is some  
4 time potentially to comment further on this?

5 MR. GNUGNOLI: There may be. I mean, it  
6 really depends on whether the -- fundamentally, we've  
7 been told that these documents belong to the IAEA, of  
8 and they really, really want to do what they want with  
9 it, they can. But generally they have made every  
10 single or most opportunities available to the member  
11 states to put in their perspectives.

12 But they could -- anything could happen.  
13 They could send it into publication, they could send  
14 it back through the Safety Standards Review Committees  
15 for review, or even as a result of the meeting that  
16 Chris went to they could basically go back and start  
17 making some changes and go back out for members to  
18 review again. There's a lot of options they could  
19 take. At this point, I'm not exactly aware of what  
20 they're doing.

21 VICE CHAIRMAN CROFF: Well, the challenge  
22 we've got here, it's pretty obvious, is, you know,  
23 you've described the last public draft. They're  
24 presumably working on something else here, and, you  
25 know, we don't know what it is. I'm not -- do you

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1 know what it is? I mean, do you know what this next  
2 product is going to look like?

3 MR. MCKENNEY: I do, but it has not been  
4 released to everybody else, because --

5 VICE CHAIRMAN CROFF: You know, that  
6 leaves us in sort of a dilemma of how to deal with it.  
7 I mean, commenting on a report that is -- you know, we  
8 know is moot and is being modified is not, you know,  
9 a good use of anybody's time. That leaves us with one  
10 or two courses.

11 Basically, if it goes to this approval  
12 committee in the spring and is approved, then  
13 basically it exists and we deal with it, you know, and  
14 -- well, I mean, we deal with it in the sense it  
15 exists, and, you know, as a country we have to decide  
16 what to do it about it or not as the case may be.

17 The other thing is if a draft comes out  
18 this spring publicly, but it doesn't go for approval  
19 until next fall, we'd have a shot at it to go through  
20 it. Is that a fair characterization of what we're  
21 looking at at this point in terms of options?

22 MR. GNUGNOLI: Both of those options are  
23 certainly possible. There are others. It depends on  
24 how they want to deal with the publication process.  
25 At this point, I don't know what's being done to the

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1 document. There will probably be another group either  
2 called together, either an expert group which is  
3 referred to as a consultant services meeting, where  
4 individuals from various countries are invited to  
5 address the issues brought up that came out of the  
6 meeting that Chris went to, and maybe further comments  
7 that have been provided.

8 The IAEA has opened up its process a great  
9 deal in the last few years in terms of how people can  
10 comment on it. So there could be comments that came  
11 into the IAEA that we would not be aware of from other  
12 countries and other sources, but recommending further  
13 changes.

14 With this information at hand, the IAEA  
15 has a number of choices. One, as you said, it could  
16 be -- go to publication. I suspect not. Or -- and I  
17 think they would probably have to aim for one more  
18 shot at the waste safety standards committees and  
19 other safety standards committees because it affects  
20 more than just waste I guess.

21 So I suspect that's probably still going  
22 to be a milestone. I can't guarantee it 100 percent,  
23 but I can't see them at this point just going to  
24 publication without any further review.

25 VICE CHAIRMAN CROFF: In that scenario, we

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1 would have a crack at it?

2 MR. GNUGNOLI: Everybody would, because  
3 they would probably put it up on their website and  
4 anybody could write in and say, "Hey, do this, do  
5 that." I mean, there's nothing to stop this Committee  
6 as an entity in itself to send comments in.

7 VICE CHAIRMAN CROFF: Well, yes, but we  
8 don't have the draft to --

9 MR. GNUGNOLI: Yes, I know.

10 VICE CHAIRMAN CROFF: -- comment on.

11 MR. GNUGNOLI: Well, yes.

12 VICE CHAIRMAN CROFF: That's a serious  
13 impediment.

14 MR. GNUGNOLI: Yes.

15 (Laughter.)

16 But if it gets put up there, anybody  
17 can --

18 VICE CHAIRMAN CROFF: Oh, yes, if it gets  
19 put up there. I think, you know, we'd want to be  
20 involved, you know, as soon as that happened, to get  
21 a copy of it and hear your thoughts on it.

22 You say you have a fairly good idea of  
23 what this next thing will look at. How satisfied are  
24 you with it without getting into any gory details?

25 MR. MCKENNEY: I was fairly satisfied.

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1 (Laughter.)

2 VICE CHAIRMAN CROFF: I am not quite sure  
3 where to go with this, but I think we just wait and  
4 see I guess is what I'm left with, see if another  
5 draft comes available, or if they approve it. We'll  
6 look at what is approved and figure out the  
7 implications.

8 MR. GNUGNOLI: We're in the same boat.

9 CHAIRMAN RYAN: It sounds like a good  
10 place to stop, then.

11 MR. MCKENNEY: I mean, I -- in November,  
12 what I saw in the meeting, to say what --

13 CHAIRMAN RYAN: Yes.

14 MR. MCKENNEY: -- if there has been a new  
15 consultancy group that has been formed and everything  
16 else.

17 CHAIRMAN RYAN: That's fair enough.

18 MR. MCKENNEY: I could be in a -- it's a  
19 bad position to say, no --

20 CHAIRMAN RYAN: Okay.

21 MR. MCKENNEY: -- I was happy. I was  
22 happy; that's all I can say.

23 CHAIRMAN RYAN: Not altogether unwell.

24 MR. MCKENNEY: Yes.

25 (Laughter.)

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1                   VICE CHAIRMAN CROFF: Okay. Well, I  
2 think, then, you know, we'll probably leave it at  
3 that. You know, we'll just wait and see what happens.  
4 If there's some motion there, in terms of a draft  
5 becoming available, or when you know when approval is  
6 scheduled, or whatever, we'd -- you know, please  
7 contact I guess Derek as the staff member and let him  
8 know what's going on, and we'll decide whether to hear  
9 further about it or what to do. But I can't see --

10                   CHAIRMAN RYAN: And I guess I'm taking  
11 away the message, too, that you share at least some of  
12 our -- some recognition of the fact that we see other  
13 dimensions that help you define those various  
14 categories and that I get the sense that, you know,  
15 you'd probably feel better satisfied if there was a  
16 little bit more meat on that bone in terms of what's  
17 in the draft. And maybe that's a focal point for us  
18 to be thinking about as we wait for the public draft  
19 to comment on.

20                   MR. GNUGNOLI: I don't think we should try  
21 to lead you down the primrose path here. The process  
22 here is that these -- that country members or experts  
23 go in terms of working on these documents. And when  
24 they bring their drafting capabilities, they'll also  
25 bring their experience and the understanding of these

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1 other dimensions along with it.

2 If I had to bet money on it, I don't think  
3 you'll see those things jumping out at you from a  
4 safety guide, because the IAEA generally writes safety  
5 guides that are fairly general in nature. It's kind  
6 of motherhood/apple pie in many ways.

7 CHAIRMAN RYAN: I'm well familiar with  
8 IAEA safety guides, but that doesn't mean they can't  
9 make them better.

10 MR. GNUGNOLI: You're right. You're  
11 right.

12 CHAIRMAN RYAN: Ignoring these details in  
13 my view is a significant deficiency.

14 MR. GNUGNOLI: And you're absolutely  
15 right, but you may see it -- an effort that will  
16 completely categorize and look at every single bit of  
17 those things.

18 CHAIRMAN RYAN: Oh, sure.

19 MR. GNUGNOLI: But when you look at the  
20 result, you won't get the feeling that all that was  
21 looked into. That's the problem.

22 CHAIRMAN RYAN: And, again, I'm not asking  
23 for them to be analytic.

24 MR. GNUGNOLI: Yes, yes.

25 CHAIRMAN RYAN: I'm simply asking them to

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1 recognize and advise that it's okay to consider these  
2 other dimensions when you decide where all these break  
3 points are.

4 MR. GNUGNOLI: Absolutely.

5 CHAIRMAN RYAN: In a more explicit way  
6 than what you've described.

7 MR. GNUGNOLI: Right.

8 CHAIRMAN RYAN: And so, you know, that's  
9 the takeaway message I'm taking.

10 VICE CHAIRMAN CROFF: Okay. I guess --

11 MR. HAMDAN: Mike Bell is still on the  
12 line. Do you want to talk to him or --

13 CHAIRMAN RYAN: No, we're good.

14 VICE CHAIRMAN CROFF: Not necessary.  
15 We're good.

16 Back to you, I guess?

17 CHAIRMAN RYAN: Yes. We're scheduled --  
18 thank you. We're scheduled for a short break, 2:30 to  
19 2:45. We'll reconvene with the topic of possible use  
20 of moderator exclusion for transportation packages at  
21 2:45.

22 Thank you all very much for your time.

23 (Whereupon, the proceedings in the  
24 foregoing matter went off the record at 2:35 p.m. and  
25 went back on the record at 2:51 p.m.)

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1 CHAIRMAN RYAN: Okay. Our next briefing  
2 will be on the possible use of moderator exclusion for  
3 transportation packages, and Ruth Weiner will lead us  
4 in this discussion.

5 MEMBER WEINER: Thank you, Mr. Chairman.  
6 We do have some people on the telephone bridge, and if  
7 you could identify yourselves, and say who you are.  
8 Anybody there? Let's see. Could you say again  
9 because our recorder did not hear.

10 MR. CARLSON: Brett Carlson with the  
11 National Spent Nuclear Fuel program at the Idaho  
12 National Laboratory, and there's about six of us here  
13 in the room.

14 MEMBER WEINER: Thank you. If any of you  
15 want - there's an echo here - if any of you want to  
16 ask a question, please identify yourself when you ask  
17 for the recorder. That's all. And our speakers are  
18 Nancy Osgood, and you have others with you.

19 MS. OSGOOD: Thank you, Ruth. I think  
20 that Bill Brock would like to say a few words  
21 introduction.

22 MEMBER WEINER: Please, Bill.

23 MR. BROCK: Thank you, Nancy. I'm Bill  
24 Brock. I'm Director of the Spent Fuel Storage and  
25 Transportation Division at NMSS. First, I want to

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1 thank the ACNW, the Advisory Committee. We contacted  
2 staff and requested that this topic be added to the  
3 agenda on fairly short notice, and I appreciate the  
4 committee's agreement to support and sponsor this  
5 presentation. The topic of this presentation on  
6 moderator exclusion in transportation packages is one  
7 that Nancy will be walking through the background, but  
8 it's one that we are having quite a bit of interaction  
9 with applicants on development of packages to us, or  
10 to be submitted to us in the fairly near future, so we  
11 thought it was important not only for us to interact  
12 with the advisory committee, but as Nancy will be  
13 discussing, gaining within the agency other further  
14 deliberations and considerations. But I appreciate  
15 the committee's agreement to let us meet with you  
16 early in the process, so we can engage with you, and  
17 get committee feedback. And with that, let me now  
18 turn over the presentation to Nancy Osgood, and Gordon  
19 Bjorkman, and Carl Withie from Spent Fuel Storage  
20 Transportation Division, who'll be giving the  
21 presentation. Thank you.

22 MEMBER WEINER: Thank you, Bill. Go  
23 ahead, Nancy.

24 MS. OSGOOD: Thank you. My name is Nancy  
25 Osgood, and I'm a Senior Project Manager in the

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1 Division of Spent Fuel Storage and Transportation.  
2 I've been working in NRC's Transportation program for  
3 about 19 years, and on a personal note, this is the  
4 first time I've had the opportunity to make a  
5 presentation to the ACNW, so thank you very much.

6 Today I'm here to make a short briefing on  
7 moderator exclusion in spent fuel transportation  
8 packages. It is a complicated issue, but I will do my  
9 best to provide an informative overview of moderator  
10 exclusion in the 30 minutes I have for the  
11 presentation.

12 First, I would like to give a definition  
13 of what we mean when we say moderator exclusion.  
14 Moderator exclusion means that a transportation  
15 package relies on the absence of water to assure  
16 nuclear criticality safety. So why are we here  
17 today? First, I would like to also thank the ACNW for  
18 rearranging its schedule to hear us at such short  
19 notice, and then dealing with the weather delays, as  
20 well. And we're grateful to get this opportunity. We  
21 wanted to give this briefing as soon as possible  
22 because potential applicants have indicated to us that  
23 they are developing package designs that may rely on  
24 moderator exclusion for criticality safety.

25 Using moderator exclusion as a basis for

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1 design approval of a spent fuel package has  
2 significant safety, security, and policy implications.  
3 We believe that we need to seek commission guidance  
4 regarding this issue. We, therefore, wanted to  
5 provide an informational briefing to the committee on  
6 moderator exclusion and to present possible regulatory  
7 paths forward. Also, we want to receive any input or  
8 advice that the committee might have.

9           The current staff thinking is that an  
10 appropriate way to address the issue of moderator  
11 exclusion is through the rule making process. I would  
12 like to be clear regarding the scope of the briefing.  
13 Although the NRC transportation regulations apply to  
14 all fissile material, this briefing will focus on  
15 spent fuel transport. This is because the package  
16 designs in question are for spent fuel.

17           We would also like to discussion moderator  
18 exclusion from a policy and a safety perspective.  
19 Although there are security implications associated  
20 with the moderator exclusion issue, we will not  
21 address those in this open meeting. And here's our  
22 list of briefing topics.

23           First, I would like to establish some  
24 important points to take away from the briefing. Next  
25 I will discuss the regulatory basis for

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1 transportation, including specific regulatory  
2 requirements in 10 CFR Part 71. I will discuss in  
3 detail the regulations for fissile material  
4 transportation packages; and, in particular, the  
5 regulatory basis for moderator exclusion. I will  
6 describe past experience with respect to spent fuel  
7 package approvals and established staff practices and  
8 regulatory guidance. I will discuss some points that  
9 need to be considered in addressing the moderator  
10 exclusion issue, and identify some potential paths  
11 forward. And I will present a conclusion based on the  
12 staff's current thinking.

13 First, important points to take away, and  
14 this is kind of just a summary. First, is the  
15 regulatory framework of Part 71. In a nutshell, NRC  
16 certifies designs for transportation packages. Once  
17 the design is certified, any number of individual  
18 packages may be fabricated, and any NRC licensee,  
19 state licensee, and DOE entity may use the package.  
20 I will discuss this framework, as well as specific  
21 regulations later in the briefing.

22 Another point is the importance of NRC's  
23 strategic goal of prevention of an inadvertent  
24 criticality. Transportation packages perform three  
25 basic safety functions; containment of the radioactive

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1 material, shielding to limit external radiation from  
2 a package, and for fissile materials, prevention of  
3 criticality. Among the three safety functions of a  
4 package, prevention of criticality has special safety  
5 and public confidence significance. For shielding  
6 containment, should the package not perform adequately  
7 in a real accident, or should the accident conditions  
8 be different from the regulatory tests, the  
9 consequences may exceed a regulatory acceptance  
10 standard, but the impact on public health and safety  
11 would likely be small. Depending on the extent of a  
12 criticality, the consequences may be greater than just  
13 exceeding the regulatory dose limit. From an agency  
14 standpoint, prevention of an inadvertent criticality  
15 has a special place as a strategic goal.

16 Also, transportation is not limited to a  
17 single site within a site boundary. Transportation  
18 takes place in the public domain, and not within a  
19 controlled site; and, therefore, the public may be in  
20 close proximity to transportation package. Although  
21 we have a safe transportation system, accidents  
22 routinely occur in the public arena, and the accident  
23 conditions are somewhat unpredictable.

24 The third important point is that the  
25 assumption of water in a package is a fundamental

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1 safety criterion. Designing a fissile package so it  
2 is critically safe with water inside is a fundamental  
3 requirement that imparts a margin of safety and  
4 defense-in-depth against accident criticality. It is  
5 important to note that it is not directly linked to  
6 any regulatory test or environmental condition. It is  
7 not directly linked to the presence or absence, or  
8 depth of bodies of water in transport. It is,  
9 therefore, independent of the robustness of the  
10 package design, but, instead, it is a fundamental  
11 safety requirement to assure criticality safety in any  
12 situation. Assuming water in the containment system  
13 provides a defense-in-depth, considering such things  
14 as uncertainties in the transportation environment,  
15 human factors, loading and unloading, and malevolent  
16 acts. This is a very important point, and I will be  
17 discussing the regulatory basis for this distinction.

18 The last important point is that rule  
19 making provides a pathway to risk-informed moderator  
20 exclusion. Notwithstanding the need to preserve  
21 adequate margins of safety in defense-in-depth against  
22 accidental criticality in transport, the staff  
23 believes that addressing the moderator exclusion issue  
24 through the rule making process, with participation of  
25 our various stakeholders, may allow some level of

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1 regulatory relief for certain packages under certain  
2 conditions, while maintaining strong safety standards.

3 I would like to now talk about the  
4 regulatory framework for transportation. As you know,  
5 NRC shares regulatory responsibility for the safe  
6 transport of radioactive material with the Department  
7 of Transportation. DOT regulates carriers and package  
8 standards for small quantities of radioactive  
9 material. NRC is the agency that is responsible for  
10 performance standards and certification of designs for  
11 packages for large quantities, that is Type B  
12 quantities, of radioactive material, and for fissile  
13 material. NRC's regulations for transportation are in  
14 10 CFR Part 71.

15 NRC approves of certifies designs for  
16 these Type B and fissile material packages using  
17 performance standards in Part 71. Once the design is  
18 certified, there are, in general, no restrictions on  
19 number of packages that may be built, the number of  
20 shipments, and typically no restrictions on routes, or  
21 modes of transport. In Part 71, environmental  
22 assessment and stakeholder participation take place  
23 during the development of the regulations. As you  
24 know, we recently completed a major Part 71 rule  
25 making, which was accomplished through the

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1 participatory rule making process that included  
2 extensive public interactions. However, once the  
3 regulations are in place, there is no additional  
4 stakeholder input during the design approval process.

5 One unique aspect of transportation is  
6 that essentially all transportation by licensee's of  
7 Type B quantities of radioactive material and fissile  
8 material is authorized by a general license in Part  
9 71. Basically, the general license in Part 71  
10 authorizes any licensee to use any NRC certified  
11 package. There is a registration requirement, and  
12 certain simple terms and conditions in the general  
13 license; such as, the licensee must have a copy of the  
14 certificate of compliance for the package.

15 This system of use by general license is  
16 a very efficient way to regulate transportation, and  
17 imposes a minimum regulatory burden on licensees. NRC  
18 packages are also authorized for use by state  
19 licensees and DOE, and its contractors under DOT  
20 regulations. NRC approved designs may also be used  
21 internationally, including for import and export  
22 shipments, and shipments made solely within other  
23 countries; although, foreign regulatory authorities  
24 also, obviously, play a role there.

25 The regulations for fissile material

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1 include requirements for single packages, and for  
2 arrays of packages. Today we will focus on 71.55 for  
3 a single package, since that is the section of the  
4 regulations that includes requirements related to  
5 moderator exclusion. This section lays out the  
6 fundamental safety principles. We call them general  
7 design criteria in the design of a fissile material  
8 package. And, of course, the focus is protection  
9 against inadvertent criticality, not containment, or  
10 shielding.

11 The fissile material package standards  
12 include specific design criteria to ensure sub-  
13 criticality of the fissile material under the three  
14 regimens of operations, normal conditions of  
15 transportation, and hypothetical accident conditions.  
16 The most fundamental of these design criteria is that  
17 a package must be critically safe with water in the  
18 containment system. That regulation is 71.55(b). I  
19 will paraphrase the regulation here. The full text of  
20 the regulations is included in the backup slides that  
21 are at the end of the presentation.

22 So 71.55(b) says that "a fissile material  
23 package must be designed and the contents so limited  
24 that the package is subcritical if water were to leak  
25 into the containment system." The regulation goes on

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1 to say that "the fissile material must be in its most  
2 reactive credible configuration, consistent with the  
3 chemical and physical form of the material, moderation  
4 by water occurs to the most reactive credible extent,  
5 and there is close water reflection of the containment  
6 system."

7 Here it is important to note that the  
8 regulation does not refer to the normal or accident  
9 conditions tests. It is non-mechanistic requirement,  
10 a fundamental safety design criterion separate from  
11 the robustness of the package. Although the  
12 subcriticality of the package is also specifically  
13 addressed for the normal and accident conditions,  
14 which we will see in the next slide, but before that  
15 comes 71.55(c), which states: "The commission may  
16 approve exceptions to the requirements of Paragraph B  
17 of this section if the package incorporates special  
18 design features that ensure that no single packaging  
19 error would permit leakage, and if appropriate  
20 measures are taken before its shipment to ensure that  
21 the containment system does not leak. This provision,  
22 10 CFR 71.55(c), is the regulatory basis for moderator  
23 exclusion."

24 There are two additional provisions  
25 pertinent to moderator exclusion regarding the

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1       criticality safety of a single package, and these are  
2       10 CFR 71.55(d), which states, in part, that "a  
3       fissile material package must be designed and its  
4       contents limited, such that under normal conditions of  
5       transport, the contents would be subcritical.  
6       Specifically, the regulation says that water must not  
7       leak into the containment system under the normal  
8       conditions of transport, unless water moderation in  
9       the containment system is assumed in the criticality  
10       analysis for the package, including arrays of  
11       packages."

12                       Unlike 71.55(b), this regulation  
13       specifically identifies the regulatory test conditions  
14       defined in 71.71 as the normal conditions of  
15       transport. These normal conditions of transport do  
16       not include a water emergent test, but they do include  
17       a water spray test intended to simulate the effects of  
18       a heavy rain.

19                       And, finally, there is 71.55(e).  
20       Paragraph 71.55(e) states, in part, that "a fissile  
21       material package must be designed and its contents  
22       limited such that under hypothetical accident  
23       conditions, the package would be subcritical, assuming  
24       that water moderation occurs to the most reactive  
25       credible extent consistent with the damaged condition

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1 of the package, and the chemical and physical form of  
2 the contents." Here, again, unlike 71.55(b), the  
3 regulation specifically identifies the regulatory test  
4 conditions defined in 71.73. The hypothetical  
5 accident tests are those that we are all familiar  
6 with. These include the sequence of a 30-foot free  
7 drop, a puncture test, a fire test, and a shallow  
8 three-foot water emersion test. In addition, a  
9 separate fifty-foot emersion test with an undamaged  
10 specimen is also required. So these are the three  
11 cases where a single package must be shown to be  
12 critically safe.

13 First, with water inside the containment  
14 system, non-mechanistically as a fundamental design  
15 criterion. Second, under the regulatory tests and  
16 conditions, defined as normal conditions of transport.  
17 And, third, under the regulatory tests and conditions  
18 defined as hypothetical accident conditions.

19 I just wanted to add some brief regulatory  
20 notes here. First, just as a point of curiosity, a  
21 little history of 10 CFR Part 71, including 71.55(b)  
22 and (c). The regulations for spent fuel transport  
23 were first proposed in 1960. They were proposed again  
24 in 1961 and 1965. The performance-based system we  
25 know today was first adopted in 1966. The requirement

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1 for consideration of water in the containment system  
2 has always been included in some form in the  
3 regulations that govern spent fuel transportation.  
4 Although the wording and the arrangement of the  
5 provisions have changed in form over the year, the  
6 fundamental requirement has remained in force.

7 As you know, IAEA also promulgates  
8 regulations for the safe transport of radioactive  
9 material. The current regulations are in TSR-1 in the  
10 2005 edition. In general, Part 71 is compatible,  
11 harmonized with IAEA regulations, but not identical to  
12 them.

13 Similarly, in-leakage of water has always  
14 been an assumption IAEA regulations. The requirements  
15 were first promulgated in the very early 1960s, and,  
16 again, although the requirement has always been  
17 included, the wording in the regulations has changed  
18 slightly over the years.

19 Now I'd like to talk about our, I guess  
20 the staff practice and the history of our package  
21 approvals at NRC. No spent fuel transportation  
22 package design certified by the NRC relies on  
23 moderator exclusion for criticality safety. In NRC,  
24 our division, the Division of Spent Fuel Storage and  
25 Transportation, or SFST, certifies designs for

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1 transportation packages, including spent fuel  
2 transportation packages. The NRC has a standard  
3 format and content guide for applications for package  
4 approvals. We have standard review plans, as well as  
5 a wide range of regulatory guidance that has been  
6 developed over the past 30 to 40 years of approving  
7 hundreds of package designs.

8           Currently, there are 23 certificates of  
9 compliance for package designs that are authorized for  
10 the transport of spent fuel. These range from  
11 packages that are designed to transport partial  
12 segmented fuel rods, research reactor and naval  
13 reactor spent fuel, truck casks for commercial spent  
14 fuel, and rail casks that are part of a dual-purpose  
15 system of storage and transport. In all cases, the  
16 packages are designed to be critically safe with fresh  
17 water in the containment system. Typically, any void  
18 within the containment system is assumed to be  
19 available for water ingress. These assumptions are  
20 made to satisfy the regulatory requirement in 10 CFR  
21 71.55(b).

22           Notwithstanding the safety importance of  
23 71.55(b), the staff recognizes that there may be cases  
24 where certain shipments may be made safely, even  
25 though a package has not been evaluated with water

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1 inside. Although no applicant has requested approval  
2 of specific shipments that rely on moderator  
3 exclusion, the staff could support use of the  
4 regulatory exception in 71.55(c) for certain shipments  
5 with appropriate risk information. The staff believes  
6 that there are instances where approval under 71.55(c)  
7 is appropriate, but that this provision should be  
8 reserved for exceptional circumstances on a case-by-  
9 case basis, and not for design approval. These  
10 instances should be limited to certain shipments where  
11 appropriate risk information and compensatory measures  
12 can be used to ensure adequate protection against  
13 accidental criticality during loading, unloading, as  
14 well as transport.

15 The staff has never approved a spent fuel  
16 package design on the basis of moderator exclusion.  
17 The staff does not believe that this provision is  
18 intended for design approvals, for a number of  
19 reasons. As I described previously, under the current  
20 provisions of Part 71, design approval allows  
21 essentially unlimited shipments with no specific route  
22 or mode specified, because any certified design may be  
23 used by any licensee under the general license. This  
24 could then lead to the routine use of packages that  
25 were approved under a regulatory exception.

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1           Second, such a design could reduce  
2 defense-in-depth against an accidental criticality.  
3 Potential accident conditions, human factors, loading  
4 and unloading, and potential misloading would take on  
5 an important new safety significance. Third, design  
6 approval may not be consistent with environmental and  
7 risk assessments that are founded on the basis that a  
8 criticality event in transportation is not credible.

9           I believe a very important point is that  
10 most spent fuel can be transported in packages that do  
11 not rely on moderator exclusion for criticality  
12 safety. Package designers use alternative methods to  
13 demonstrate criticality safety. Most packages  
14 incorporate some type of neutron absorber plates in  
15 the basket structure. Neutron absorber plates and  
16 other design features are used to assure adequate  
17 subcriticality, even in the presence of fresh water.  
18 Burn-up credit may be an alternative to moderator  
19 exclusion. Burn-up credit is quantifying the  
20 decreased reactivity of the fuel due to irradiation in  
21 the reactor. SFST has issued an interim staff  
22 guidance document, ISG-8, for acceptable methods of  
23 taking credit for fuel burn-up in criticality analyses  
24 for transportation packages. Additionally, SFST  
25 recently issued a package design approval taking

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1 credit for burn-up even in excess of the ISG, based on  
2 the technical justification provided by the applicant.

3 It is also important to note that the  
4 transport aging and disposal, or TAD canister being  
5 designed for use at Yucca Mountain is being designed  
6 so that it is subcritical with fresh water in the  
7 containment system. So what packages may need to take  
8 credit for moderator exclusion?

9 According to applicants, packages with  
10 very large capacities, depending on the physical  
11 design of the package, may need moderator exclusion.  
12 In addition, Department of Energy, Idaho Office, has  
13 designed a smaller canister for transport of  
14 irradiated non-commercial fuel that may need moderator  
15 exclusion to demonstrate criticality safety. We  
16 continue to interface with DOE-Idaho to explore the  
17 technical issues associated with the future transport  
18 of their fuels.

19 Recently, we have also addressed moderator  
20 exclusion for packages that transport high burn-up  
21 fuel. The transport of high burn-up fuel presented  
22 technical issues in meeting the requirements of 10 CFR  
23 71.55, due to its behavior under accident conditions.  
24 To address this particular problem, the staff issued  
25 Interim Staff Guidance number 19. In the past few

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1 years, the typical burn-ups of commercial spent fuel  
2 have increased, and there was no longer confidence  
3 that the behavior of the fuel cladding under drop-test  
4 conditions could be well predicted. It was postulated  
5 that there could be brittle circumferential failure of  
6 cladding, such that sections of fuel rods could be  
7 severed and displaced within the lattice. The  
8 possibility of more reactive fuel configurations  
9 became a concern.

10 The staff developed a modified review  
11 practice to address the possibility of fuel  
12 reconfiguration under accident conditions. ISG-19 was  
13 issued in May 2003, to provide guidance to applicants  
14 that wanted to include high burn-up fuel as authorized  
15 contents. ISG-19 allows moderator exclusion under  
16 71.55(e). It provides two methods for an applicant to  
17 use to address criticality safety under accident  
18 conditions; that is, to show that the package meets  
19 71.55(e).

20 One method is to demonstrate through a  
21 physical test that the package does not leak. The  
22 other method involves developing criticality models of  
23 the fuel that reasonably bound credible fuel  
24 reconfiguration under accident conditions.

25 Calculations performed by staff support the safety and

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1 risk basis, since fuel rearrangements under accident  
2 conditions would not result in a credible  
3 reconfiguration that results in a critical system.

4 Although ISG-19 currently is limited to  
5 commercial spent fuel, and specifies a physical test  
6 to demonstrate no leakage, we believe that the  
7 guidance could be expanded for other fuel types, and  
8 other demonstration methods with justification. ISG-  
9 19 does not give relief from the requirements of  
10 71.55(b). Applicants would still need to demonstrate  
11 subcriticality with water in the containment system.  
12 However, this demonstration could assume that the fuel  
13 is in its as-loaded configuration. Thus, staff  
14 believes that allowing moderator exclusion under ISG-  
15 19 still preserves the fundamental margins of safety  
16 against accidental criticality.

17 Points to consider in changing staff  
18 practice - there are many factors that surround the  
19 issue of moderator exclusion, and the staff has  
20 identified some points that should be considered,  
21 particularly if the staff practice were to change.  
22 The first is policy. The staff practice with regard  
23 to moderator exclusion has been established over the  
24 past 40 years of regulatory standards and spent fuel  
25 package design approvals. The staff believes that a

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1 departure from this practice has important safety,  
2 policy, and security implications. This indicates a  
3 policy shift that should receive attention of the  
4 highest levels of NRC management and the Commission.  
5 In addition, because of the safety margins built into  
6 fissile material package standards, transportation  
7 risk studies do not evaluate probabilities or  
8 consequences from a criticality accident.  
9 Environmental and risk assessments have historically  
10 assumed that criticality is incredible. These  
11 assessments would need to be reviewed if the practice  
12 regarding moderator exclusion were to change.

13           Second is the agency's strategic goal of  
14 regulatory openness. Because design approval of  
15 packages that rely on moderator exclusion would likely  
16 lead to a routine use of a regulatory exception, it  
17 does not seem appropriate to approve designs that rely  
18 on moderator exclusion for criticality safety under  
19 the regulations in force today. Design approval of a  
20 spent fuel package that does not meet 71.55(b) would  
21 not be consistent with regulatory openness, since  
22 there is no public participatory process in Part 71  
23 design approvals. Rule making would allow stakeholder  
24 participation and appropriate evaluation of risks.

25           The third is timing, including staff

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1 resources and timeliness. When considering policy  
2 shifts in rule making, we recognize that the duration  
3 is longer than typical technical reviews. To give the  
4 committee a benchmark, we estimate that approval of a  
5 spent fuel package design takes approximately one  
6 year, provided there are no significant technical  
7 issues identified during the review. For a package  
8 design that presents specific technical challenges  
9 with respect to criticality safety, the review could  
10 be expected to take significantly more time.

11 And this brings us to the most important  
12 point, safety. Assuming water in the package is a  
13 fundamental safety principle that assures margin of  
14 safety and defense-in-depth against an accidental  
15 criticality, and the importance of criticality safety  
16 in transportation is clear, one most important point  
17 is that the requirement to include moderators not  
18 specifically tied only to the robustness of the  
19 package design; that is, the requirement is a  
20 fundamental safety standard. Risk-informing the  
21 regulation would address risks associated with both  
22 transportation accidents and other risks that should  
23 be considered. We recognize that transportation  
24 accidents do occur, and the conditions may be  
25 uncertain. For example, in a real transportation

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1 accident with a package that relies on moderator  
2 exclusion, the advice to fight a fire may not be as  
3 clear cut as it is today. And most important, the  
4 prevention of criticality must be considered for all  
5 package evolutions, including loading and unloading,  
6 as well as transportation.

7           For example, transportation packages today  
8 must be shipped dry, and are vacuum dried and  
9 backfilled with inert gas. However, there have been  
10 three recent shipments where the packages arrived with  
11 significant volumes of water in the containment  
12 system. The introduction of water into the  
13 containment system did not occur as a consequence of  
14 a severe transportation accident. As a matter of  
15 fact, the three shipments were made without incident.  
16 Although contributing factors were identified with  
17 respect to these incidents, the route cause was  
18 difficult to determine. Contributing factors included  
19 design, proof of principle testing, and loading  
20 operations. Because all of these shipments were  
21 critically safe with water in the containment system,  
22 the risk associated with these incidents was small.

23           The staff has considered various  
24 regulatory options to address the moderator exclusion  
25 issue. We believe these three options present three

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1 possible paths forward. The first is to continue  
2 staff practice. Current staff practice is documented  
3 in guidance documents, including the standard review  
4 plans for transportation package approvals. The  
5 current staff practice ensures a strong defense-in-  
6 depth against accidental criticality in transport.  
7 The current staff practice is consistent and in  
8 compliance with the regulations in Part 71. However,  
9 applicants have claimed that the practice could result  
10 in more shipments of spent fuel, since larger packages  
11 would need to rely on moderator exclusion.

12 The second option is to consider design  
13 approval under 71.55(c). We recognize that there is  
14 ambiguity in the regulations in 71.55(b) and (c).  
15 Although packages are robust, and the transportation  
16 system is safe, we have not approved designs for spent  
17 fuel packages under this provision. The staff  
18 believes that design approvals should only be  
19 considered if there is significant risk information to  
20 supplement the package performance information  
21 associated with fissile material packages that meet  
22 71.55(b).

23 Rule making appears to be the most  
24 appropriate pathway to resolve technical issues  
25 associated with moderator exclusion. A risk-informed

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1 regulation specifically addressing moderator exclusion  
2 in certain spent fuel packages and under certain  
3 conditions could be developed. This regulation could  
4 clarify the requirements of 71.55, and provide  
5 specific requirements for design approval using  
6 moderator exclusion. You see I put number four.

7 We're open to other suggestions with respect to  
8 regulatory options that would provide a path forward.

9 I'd like to conclude by stating that the  
10 staff intends to seek commission guidance on the  
11 moderator exclusion issue. Approving package designs  
12 based on moderator exclusion would represent a  
13 fundamental change in NRC practice with significant  
14 safety, security, and policy implications. The staff  
15 is developing a policy paper to forward to the  
16 commission in the near future. In this fashion, the  
17 staff will seek commission guidance on this issue.  
18 And although the commission paper has not yet been  
19 completed, and is certainly subject to change, the  
20 current staff thinking indicates that rule making is  
21 the appropriate resolution pathway. This would allow  
22 a participatory process with external stakeholders.  
23 The rule making plan could systematically evaluate  
24 risks, considering security issues, the robustness of  
25 the packages, accident frequencies, loading and

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1 unloading operations, and human factors. The  
2 resulting regulation could add clarity to 71.55, and  
3 provide for regulatory options for spent fuel packages  
4 that maintain a defense-in-depth, and appropriate  
5 safety margins to accidental criticality. And that  
6 concludes my presentation.

7 MEMBER WEINER: Thank you very much. For  
8 those listening on the telephone bridge, I'll explain  
9 the questioning protocol. We're going to ask the  
10 members of the committee first if they have questions,  
11 then I'll go to anyone on the bridge, and then I'll go  
12 to staff. So with that said, Dr. Hinze.

13 MEMBER HINZE: Well, I'm afraid I'm  
14 playing catch-up here, but the problem is that some of  
15 the containers, the shipping containers have leaked,  
16 and you're trying to develop a rule making for new  
17 designs that would make certain that they didn't leak.  
18 Is that what we're talking about?

19 MS. OSGOOD: No. It's actually a little  
20 bit backwards from that.

21 MEMBER HINZE: Okay.

22 MS. OSGOOD: Currently, the regulations  
23 require that a package be assumed to leak, and it's a  
24 non-mechanistic thing, so every package that we  
25 approve under the current regulations must be

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1 critically safe assuming water can get in. There are  
2 applicants who want to develop designs, new designs to  
3 be approved under the regulatory exception, and they  
4 don't want to meet that regulatory requirement, but  
5 want to demonstrate that they are critically safe by  
6 the robustness of the package. The regulation in  
7 place now requires that we consider water in the  
8 containment system, and show that the package is  
9 critically safe with water, but applicants have said  
10 that's too much of a regulatory penalty for these  
11 robust packages.

12 MEMBER HINZE: So then this rule making  
13 would incorporate establishing tests that would show  
14 that to be true, and to validate the robustness of  
15 these packages. Is that -- am I --

16 MS. OSGOOD: No, not exactly. What the  
17 rule making - and we don't have a rule making plan,  
18 because we're going to request commission guidance  
19 with respect to pursuing rule making, but the rule  
20 making could evaluate risks from certain kinds of  
21 packages, in particular, spent fuel packages, and  
22 maybe allow some regulatory relief with respect to  
23 meeting the requirements in 71.55, recognizing that  
24 there is a regulatory exception that identifies at  
25 least two things that have to be included in a package

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1 design to allow that. But to clarify that regulation,  
2 maybe allow a different avenue for certain spent fuel  
3 packages, we would develop a new regulation.

4 MEMBER HINZE: Okay. I'm going to pass at  
5 that. Thank you.

6 MEMBER WEINER: Dr. Ryan.

7 CHAIRMAN RYAN: Your last discussion with  
8 Professor Hinze was interesting. It's a little  
9 different than a lot of safety requirements, in that  
10 we assume it's design and works correctly, and then we  
11 evaluate failure. You design failure into the cask,  
12 and assume it works right. I mean that's the  
13 alternative.

14 MS. OSGOOD: It is the fail --

15 CHAIRMAN RYAN: But you're assuming it's  
16 completely filled with water, and it's failed, and  
17 that's the design criteria, so I understand what folks  
18 are asking you to reconsider. And there is an element  
19 of that's a bit backwards from lots of other things  
20 the agency does, so there's that element to help  
21 explain it a bit. Maybe that helps you a little bit.

22 MEMBER HINZE: Yes, it does.

23 CHAIRMAN RYAN: The other part here is  
24 that - and you've touched on it, but I think it would  
25 help if you would just go into a little bit more

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1 detail - burn-up credit and criticality analysis are  
2 not unrelated. I mean, they're linked. Could you  
3 talk a little bit about how they link together? I  
4 mean, if you have fuel that's got high burn-up, you  
5 don't have as much fissile material, so criticality  
6 becomes a little bit easier to deal with in terms of  
7 you get more stuff in a cask. But on the other hand,  
8 I notice you've had comments that high burn-up fuel  
9 may have other negatives to it for reconfiguration.  
10 And, again, this is out of ignorance, so forgive me,  
11 but I struggle with what exactly are the limits,  
12 probabilities, or reasonableness of the assumptions in  
13 the scenarios used to drive your analysis in those  
14 areas. Can you help us understand that a bit?

15 MS. OSGOOD: That's a lot of questions.

16 CHAIRMAN RYAN: It is, I'm sorry.

17 MS. OSGOOD: I'll try to answer the first  
18 one first about burn-up credit.

19 CHAIRMAN RYAN: Sure.

20 MS. OSGOOD: Typically, and I'm going to  
21 go back a number of years where the transportation  
22 packages for spent fuel were designed for, I'm going  
23 to say, relatively fresh fuel out of the reactor. And  
24 because they had very high radiation sources, the  
25 spent fuel casks were actually designed for, I'm going

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1 to say, a fewer number of fuel elements, because a lot  
2 more of the weight had to go into radiation shielding.  
3 So in the old days, the packages were designed with  
4 fewer fuel elements in them, because the cool time  
5 from the reactor was significantly shorter for the  
6 design-basis fuel. In those cases, it's easiest to do  
7 the criticality analysis, assuming no burn-up,  
8 assuming that it's fresh fuel, which is the most  
9 reactive, and meeting 71.55(b), assuming that fresh  
10 water is in there. And that was, I'm going to say, a  
11 relatively straightforward calculation, and applicants  
12 could usually demonstrate that quite readily.

13 As the casks have become larger and larger  
14 in capacity, because the fuel in them is much older  
15 and aged more, so there's less mass needed for  
16 shielding, as the casks have gotten larger and larger,  
17 and to accommodate dual purpose systems, the need for  
18 moderator exclusion or burn-up credit has become  
19 evident, because now you can no longer show that these  
20 very large packages that might have 32 PWR fuel  
21 assemblies in them are critically safe with water in  
22 them, and with no burn-up, so the alternative means  
23 has been the use of burn-up credit. And Carl Withie  
24 is probably the agency expert on burn-up credit, so if  
25 you have specific technical questions, I'm sure that

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1 he'd be happy to answer those.

2 MEMBER WEINER: Could you add anything?

3 CHAIRMAN RYAN: That's fine for the  
4 question I wanted to ask. I mean, we could spend all  
5 day talking about how to get these calculations done,  
6 and I don't intend to do that.

7 MS. OSGOOD: Okay.

8 CHAIRMAN RYAN: The other kind of question  
9 I have is that - so it's not just moderator exclusion,  
10 we can't deal with moderator exclusion for all fuels.  
11 We have to deal with it for categories that burn-up,  
12 and so forth, so it's not a real straightforward  
13 question.

14 MS. OSGOOD: Right.

15 CHAIRMAN RYAN: Although it's  
16 straightforward, it's complicated, because there's  
17 lots of ranges of things you have to consider.

18 MS. OSGOOD: Exactly.

19 CHAIRMAN RYAN: So I appreciate that. You  
20 mentioned that there have been some cases where water  
21 has been in spent fuel casks, and was intended to be  
22 there. I'd be curious to know the range of percent  
23 filled that had been identified. I'm trying to get my  
24 arms around how big of a problem is water in casks.

25 MS. OSGOOD: The three incidents that I

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1 mentioned all occurred since the year 2000.

2 CHAIRMAN RYAN: Okay.

3 MS. OSGOOD: And I think in that time,  
4 there have been approximately - and Rob Lewis might be  
5 able to correct me - but approximately 100 spent fuel  
6 shipments, and there were the three that ended up with  
7 water in them. Although, exactly why it wasn't  
8 removed is not exactly clear in all cases. As I  
9 recall, the quantity was not full, although in the  
10 distance past there have been casks that have been  
11 arrived full, but there were liter quantities of  
12 water. It was significant quantities, and the casks  
13 that were --

14 CHAIRMAN RYAN: Liters?

15 MS. OSGOOD: Liters of --

16 CHAIRMAN RYAN: Yes, okay. Liters is not  
17 half-full.

18 MS. OSGOOD: No.

19 CHAIRMAN RYAN: By any means.

20 MS. OSGOOD: Well, in one of the cases,  
21 the fuel actually was in a very small canister, so it  
22 could have been significant volume of that canister  
23 because the canister was in a larger cask, so the  
24 water actually was retained within a smaller canister  
25 that could have had a significant volume.

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1 CHAIRMAN RYAN: Let me re-ask the question  
2 a different way. What was the change in K-effective  
3 by the presence of the water in the known cases?

4 MS. OSGOOD: In all cases it's less than  
5 .95, because -- and we didn't even do a criticality  
6 analysis for those, because we knew that the package  
7 had been evaluated with water anyway, so criticality  
8 safety was not --

9 CHAIRMAN RYAN: Yes, but that's a  
10 different question. I'm going in a different  
11 direction. What I'm trying to get my handle on is  
12 what's the risk?

13 MS. OSGOOD: Well, for those three cases,  
14 you know, the 3 percent of the casks --

15 CHAIRMAN RYAN: No, no, no. That's not my  
16 question.

17 MS. OSGOOD: Okay.

18 CHAIRMAN RYAN: My question is there have  
19 been hundreds or thousands of spent fuel shipments in  
20 the history of the world Part I. How many have had  
21 problems with water in the casks? What's the  
22 possibility of having an incident with water in a cask  
23 that has been given moderator exclusion credit? I'm  
24 trying to get my hands on the risk.

25 MS. OSGOOD: And I don't know that that --

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CHAIRMAN RYAN: I think that would be helpful to help -- let me finish. I think that would be helpful to help us get at your question, which is which pathway forward do we think is the best one, because without - you know, it's risk times consequence. We've got to get the risk part understood a little better, I think. That would be helpful.

MS. OSGOOD: And I think that that was sort of our intention with respect to the rule making process, because I don't believe that those statistics actually have been gathered.

CHAIRMAN RYAN: Well, you don't need to have a rule making to gather the statistics. In fact, I would say you should gather the statistics before you decide whether you need a rule making. I mean, this is my own view. It's something to think about, anyway.

MS. OSGOOD: I agree.

CHAIRMAN RYAN: Okay. I'll stop there. Thanks.

MEMBER WEINER: Allen.

VICE CHAIRMAN CROFF: You mentioned about midway through that NRC didn't certify casks that had

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1 moderator exclusion, or relied on moderator exclusion.  
2 Has anybody else done so?

3 MS. OSGOOD: To my knowledge, there has  
4 been one cask that was a very old cask design that was  
5 certified in France, I believe, but I don't believe it  
6 is any longer certified. I think internationally, I  
7 think the practice is very similar to us. I don't  
8 believe that people, that other competent authorities  
9 certify cask designs that rely on moderator exclusion.  
10 The regulation in IAEA is slightly different, but I  
11 think the intent is the same, and I think the practice  
12 worldwide is to design packages, package designs that  
13 are safe with water in them. I don't know if Rob  
14 Lewis might be able to -- Rob Lewis has more  
15 connection with the IAEA, and might have a better --

16 MR. LEWIS: I would just add that --

17 MEMBER WEINER: Identify yourself, please.

18 MR. LEWIS: I'm sorry. I'm Rob Lewis from  
19 SFST. I would just add to that, that many of the  
20 countries that are shipping spent fuel, are doing so  
21 for reprocessing, and often there's some design  
22 advantages for the package to actually ship it with  
23 water in it, so those are shipped flooded. In the UK,  
24 for example, they ship with water in the cask, not  
25 like we ship here.

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1                   VICE CHAIRMAN CROFF: Okay. Regarding  
2 this 71.55(c), your slide said routine design approval  
3 not appropriate under 71.55(c), and I'm not - I wasn't  
4 exactly clear why that was the case, even after  
5 hearing it. Can you try that again?

6                   MS. OSGOOD: I think, basically, because  
7 the way 71.55(c) is written as an exception, it uses  
8 the word "exception" in the regulation, and because  
9 design approval basically allows unlimited fabrication  
10 of units, unlimited shipments, and unlimited routes,  
11 that that is using a regulatory exception for routine  
12 shipments, so it would change, I guess, the idea that  
13 you're approving something with important safety  
14 implications as a design approval, a routine design  
15 approval; whereas, the regulation specifies that it  
16 should be an exception.

17                   VICE CHAIRMAN CROFF: The part that  
18 confused me is immediately above that statement, it  
19 says "specific shipments, not general designs, could  
20 be approved on a case-by-case."

21                   MS. OSGOOD: Right. And that was a  
22 subtlety that I was trying to get across, in that we  
23 believe that 71.55(c) would be appropriate for  
24 specific shipments. For example, if you had certain  
25 shipment, you knew the route, you knew the number of

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1 shipments, there are specific cases that we've sort of  
2 talked about, that that would be an appropriate use of  
3 71.55(c).

4 A design approval, once we issue the  
5 certificate of compliance, basically, any number of  
6 packages can be fabricated, and any NRC licensee can  
7 use them, so there's no real control over the number  
8 of shipments, or the shipment routes, or modes once we  
9 give that design approval.

10 It wasn't - and a matter of fact, one of  
11 the interesting things about the development of Part  
12 71 is, that's the way it is today, because, basically,  
13 all transportation is by general license. It's in the  
14 regulation, the license is in the regulation. We  
15 don't issue a specific license to, say a nuclear power  
16 plant, for shipping. The general license is in the  
17 regulations. That wasn't always the way it was in  
18 Part 71. In Part 71 spent fuel transport used to be  
19 by specific license, so there's been a little bit of  
20 change, I'm going to say, in the regulatory  
21 infrastructure, and it's a very subtle thing, but I  
22 think, basically, that's why we believe that 71.55(c)  
23 is not really intended for a general design approval  
24 that any NRC licensee could use, but should be  
25 reserved for exceptions to the regulations.

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1                   And just with that, it's a good question,  
2                   and it's an important question, so I'd like to see if  
3                   anybody else here wants to add something to that  
4                   response.

5                   MR. BJORKMAN: You said it quite clearly,  
6                   Nancy.

7                   MR. WITHIE: There was just one situation  
8                   where we had thought about --

9                   MEMBER WEINER: Could you identify  
10                  yourself for --

11                  MR. WITHIE: This is Carl Withie from the  
12                  Spent Fuel and Storage Transportation Division.

13                  MEMBER WEINER: Thank you.

14                  MR. WITHIE: There was just one situation  
15                  in which Idaho National Engineering Lab has spent fuel  
16                  spread around in different locations, and wanted to  
17                  consolidate. And out there during the dry season,  
18                  they were to cross no bodies of water, those kinds of  
19                  situations might be a good candidate for considering  
20                  a site-specific, or a shipment-specific exception to  
21                  the regulation.

22                  VICE CHAIRMAN CROFF: I gather in talking  
23                  to this, you anticipate a significant number of  
24                  shipments would be made if this were to happen. I  
25                  mean, we're not talking one and two, we're talking

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1 routine basis a lot of fuel.

2 MS. OSGOOD: Right.

3 VICE CHAIRMAN CROFF: Okay.

4 MS. OSGOOD: And that's exactly the  
5 subtlety. It's a whole bunch of shipments, or  
6 specific shipments.

7 VICE CHAIRMAN CROFF: And it's not  
8 possible to design this cask to be critically safe  
9 with water in it using other means? I mean, Boral or  
10 something like that?

11 MS. OSGOOD: We have not yet received an  
12 application that is based on moderator exclusion, so  
13 what the, I'm going to say, the justification of using  
14 or requesting design approval under 71.55(c) is, I'm  
15 not sure yet. We do have a dialogue going with DOE-  
16 Idaho to discuss their specific needs with respect to  
17 their canister design for non-commercial spent fuel,  
18 and so we are going to explore those kinds of  
19 technical issues with them.

20 VICE CHAIRMAN CROFF: Okay. And I gather  
21 the applicant has specifically requested moderator  
22 exclusion.

23 MS. OSGOOD: Right.

24 VICE CHAIRMAN CROFF: As opposed to any  
25 other means to increase payload or whatever.

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1 MS. OSGOOD: Right.

2 VICE CHAIRMAN CROFF: Okay. I guess, in  
3 general, my feeling is to focus more on problems and  
4 not solutions, regarding moderator exclusion is one  
5 solution, and Boral is another, burn-up credit is  
6 another, and combinations, and maybe there's other  
7 things, but okay. Thanks.

8 MEMBER WEINER: Jim.

9 MEMBER CLARKE: I'm sort of where Bill  
10 Hinze was when he started. I'm starting to understand  
11 this better. It's the moderator exclusion term that  
12 throws me. I understand it more as moderator  
13 inclusion, which is the current practice. How does  
14 this -- does this relate at all to - you're talking  
15 about large shipments, does things that are being  
16 proposed for Yucca Mountain, besides the Navy fuel at  
17 Idaho, the TADs, the dual purpose canisters, and where  
18 are we in all of that?

19 MS. OSGOOD: And I think that that's a  
20 very important question, because we have seen the  
21 design specification for the TAD canister, and it  
22 specifically states that the canister must be designed  
23 so that it is critically safe with fresh water in the  
24 containment system, so that package is clearly going  
25 to be designed without the need for moderation

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1 exclusion under 71.55(c).

2 MEMBER CLARKE: And the DPCs that are in  
3 dry cask storage or the other kinds of containers are  
4 in dry cask storage, are they - have they been  
5 approved under the same?

6 MS. OSGOOD: And that's a good question,  
7 too. A lot of the canisters with spent fuel in  
8 storage facilities today at reactor sites were not  
9 designed to meet Part 71 requirements. They were only  
10 designed to meet Part 72 requirements. And because  
11 Part 72 does not specifically have a requirement for  
12 including water, I believe that probably a lot of the  
13 canisters at reactor sites could not be shown to be  
14 critically safe with water, as currently loaded. I  
15 think some of them could; as a matter of fact, we have  
16 an application in-house today for a canister design  
17 that was originally designed for storage only. They  
18 have a transportation over-pack, and they have gone to  
19 significant technical lengths to show that the package  
20 with the fuel that's loaded in it is critically safe  
21 with water in there, so although I can't say that all  
22 storage casks could be shown to be that way, there  
23 have been some in the past that probably could be.

24 MEMBER CLARKE: So this is an ongoing  
25 issue.

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1 MS. OSGOOD: Maybe Carl would like to  
2 supplement that answer, as well. He's done a lot of  
3 the technical review on the storage casks side, as  
4 well.

5 MR. WITHIE: This is Carl Withie, again.  
6 As far as the TAD specifications, as we know it now,  
7 there appears to be enough room within inside the TAD  
8 specification to design into the design what we call  
9 flux traps, and that's a little bit of space between  
10 the poison plates, that allows moderation of the  
11 neutrons, and it allows the poisons to be more  
12 effective, but it does reduce somewhat the capacity of  
13 how many fuel assemblies you can put inside a specific  
14 diameter. And one of the places where moderator  
15 exclusion is coming up as an issue, are where people  
16 want to collapse the flux traps down so there is no  
17 space in there for the flux trap design; and,  
18 therefore, upping the capacity in the 32 assembly  
19 storage casks, or those types of ones that don't have  
20 enough space in there to make the poison plates  
21 effective enough. And we found out in terms of  
22 fabrication, you can't get enough poison in a real  
23 good plate to overcome that. You're asking the  
24 question about are there other things in the design,  
25 or can you put Boral in there. Most of the designs do

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1 have Boral in there, but it's difficult to get a high  
2 enough concentration of Boral in there to overcome  
3 close proximity of the fuel that's packed in there  
4 tightly.

5 MEMBER CLARKE: Thank you.

6 MEMBER WEINER: I just have a couple of  
7 questions, and this is for anyone. Are you really  
8 confident that you can by design alone exclude water?  
9 In other words, that you can look at the design and  
10 say okay, this one - there is no chance, even if the  
11 cask falls into a river that water will leak in? How  
12 do you assure yourself of that?

13 MS. OSGOOD: I think that's a good  
14 question. I'd like to answer that. Because I think  
15 one of the important things to take away here is that  
16 it's not just simply the design of the cask being so  
17 robust that it can be immersed under 300 meters of  
18 water, or could suffer an impact, and then fall into  
19 300 meters. It's not just that, there are other  
20 uncertainties, I think, associated with loading and  
21 unloading, which experiences we have had, and human  
22 factors, so there's a whole other, I'm going to say,  
23 elements of safety from loading to unloading that I  
24 think is just as important as the robustness of the  
25 package.

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1 I've been working in this field a long  
2 time, and if there's anybody here that has really  
3 strong confidence in the safety of our regulations,  
4 it's me. And I think that the framework that we use  
5 for package approvals is very strong, and very safe.

6 And I think one of the, I'm going to say, important  
7 measures that assures subcriticality is showing that  
8 even if water gets in non-mechanistically, that it's  
9 safe.

10 Now could we have a rule where there is  
11 some, I'm going to say, credit given to allow some  
12 kind of moderator exclusion, particularly under  
13 accident conditions with fuel reconfiguration. I  
14 think that that is part of the idea of possible rule  
15 making, because then you could review risks associated  
16 with loading, unloading, and look at human factors,  
17 and do some risk-informed decision making looking at  
18 moderator exclusion, not that you would eliminate  
19 71.55(b), but maybe you supplement it for spent fuel  
20 casks, or, in particular, spent fuel casks that have  
21 some special robustness, or special design features.

22 MEMBER WEINER: Would it be possible to  
23 have enough burn-up that you wouldn't need moderator  
24 exclusion? In other words, could you -- would you  
25 ever be transporting fuel that has so much poison from

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1 fission products and where the fissile amount of  
2 material has decreased to the point where you wouldn't  
3 need to guarantee moderator exclusion?

4 MR. WITHIE: This is Carl Withie, again.  
5 There is a point at which you could draw a curve for  
6 specified minimum burn-up amount for loading high  
7 density like that. One of the problems that comes up  
8 with that, it tends to limit the amount of inventory  
9 that's out there now that can be loaded under that  
10 particular set of conditions, so it's kind of a trade-  
11 off in terms of how flexible the design is, in terms  
12 of being operationally able to put different ranges of  
13 fuel that's out there in inventory now, but you could  
14 design so that a certain upper limit of the burn-up is  
15 allowed to go under that.

16 MEMBER WEINER: I was thinking of a rule  
17 that allowed alternatives, and that's the next  
18 question. Would you present this in such a way that  
19 there were alternatives? In other words, if the  
20 vendor didn't want to use a moderator exclusion, could  
21 make the choice between criticality prevention,  
22 moderator exclusion, and so on. Is that what you've  
23 got in mind?

24 MS. OSGOOD: I'm going to answer this -  
25 just me, personally. That's what I envision. I mean,

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1 I think that that would be a fruitful approach, is to  
2 have alternatives in the regulations, have an  
3 alternative provision. You can use 71.55(b) and (c),  
4 or 71.55(b), or you can use this, if you have this  
5 kind of package. So that's me, personally, that's  
6 sort of my vision of it. I don't know if anybody else  
7 wants to add something. I don't know if my bosses  
8 over there would agree, but --

9 MEMBER WEINER: Anyone else want to ask a  
10 question? Let me ask first, before Frank, if there's  
11 anyone on the bridge who wants to ask a question?  
12 They're kind of in an awkward situation. Frank, I'm  
13 sorry.

14 MR. GILLESPIE: Nancy and Bill, we've  
15 squeezed you in, and you gave actually, for me, a very  
16 educational discussion on transportation. What do you  
17 want from the committee, because you're at the very  
18 throws of - are you looking for the committee to say  
19 this is a big enough safety issue that rule making,  
20 and the visibility rule making brings to a change is  
21 the right path, or is there more? I'm just trying to  
22 understand. If they're going to write a letter, what  
23 would be included in the letter?

24 CHAIRMAN RYAN: What's the question?

25 MS. OSGOOD: I think I understand the

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1 question. Bill, do you want to --

2 MR. BROCK: Well, let me - if you  
3 understand the question, let me respond, then you can  
4 tell me if that's the answer to the question. This is  
5 Bill Brock. Frank, one, we, as Nancy laid out, we are  
6 preparing a paper to the commission. What we are  
7 looking for from the advisory committee are two  
8 things. One, if you recall the NMSS overall program  
9 brief to the committee back in December, prior to that  
10 briefing, it was identified to us by the staff that  
11 the committee was interested in hearing from us on the  
12 topic of moderator exclusion, and what our thoughts  
13 were, what our considerations, what our plans were,  
14 and that was, if you will, the purpose of today's  
15 briefing, was to lay that out to the committee.

16 Now going back more clearly to your point.  
17 Nancy mentioned in the opening of her presentation  
18 that we're looking for feedback from the committee,  
19 questions, views, concerns, and I believe clearly I've  
20 heard a number of points, comments raised today, is in  
21 that perspective with regard to our going to the  
22 commission. We are going to the commission with a  
23 paper, as Nancy has outlined, identifying  
24 considerations, options. Our current staff thinking,  
25 and I'm trying to choose those words carefully, is

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1 that we believe rule making is, from the standpoint of  
2 moving forward, the best approach. And as Nancy has  
3 mentioned a number of times, rule making includes  
4 clearly opportunity, whether it's engaging with you  
5 all and in-house NRC interactions, deliberations, or  
6 in outreach activities with the various stakeholders  
7 in the area of transportation, especially spent fuel  
8 transportation. There's a large stakeholder community  
9 that's very interested in what we're doing, what we're  
10 not doing, so providing that opportunity in a rule  
11 making process to engage, we think, is the right way  
12 to go. This topic is one that, within the staff, and  
13 outside of the staff, there's some views with regard  
14 to methods and approaches we need to take to assure  
15 the continued safe transportation of materials.

16 MEMBER WEINER: Frank, I -- excuse me, go  
17 ahead.

18 MR. BROCK: So from the committee, we  
19 would be looking for comments, feedback in that  
20 regard.

21 MEMBER WEINER: Frank, I do want to  
22 apologize. I should have given you a briefing before  
23 this meeting of what the purpose was. Mike, you had  
24 a question?

25 CHAIRMAN RYAN: Thank you for that

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1 clarification. I guess I'm trying to get my arms  
2 around why you've picked rule making, and I've asked  
3 a bunch of questions about what's the risk-  
4 significance of making the decision we need a rule,  
5 versus we can work with the existing regulations as  
6 they're written. I get the impression that if you had  
7 to, you could, and that's one way to deal with this.  
8 And the other way is to clean up, or clarify, or do  
9 new rules. And I don't have enough information yet to  
10 figure out for myself which one of those is better, or  
11 if either one is better, so to me, it kind of gets  
12 back to what I was asking a little bit about, is what  
13 are the risks, the real risks, analytic risks of  
14 moderator exclusion, burn-up credit, interactions  
15 between the two, risks of having a problem with having  
16 water in a cask, or not having water in a cask, as the  
17 case may be. I think the flooded cask in the UK is a  
18 little odd, because if they don't have water in those  
19 casks, they get a whole set of other big problems  
20 with, I think it's MAGNOX fuel, so that's a whole  
21 different scheme. I wouldn't use that as an example  
22 for us to think too much about, so I think we're  
23 willing to work through that with you, but we're going  
24 to need a little bit more information on these risk-  
25 related kinds of issues before we can form, I think,

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1 a well thought out opinion. Is that a fair comment  
2 from my part?

3 MR. BROCK: Yes.

4 CHAIRMAN RYAN: And then we kind of get to  
5 the - what's the experience base been? I mean, have  
6 people had problems with either keeping water in, or  
7 keeping water out? I know we always talk about a cask  
8 falling off a bridge, but I'd like to know in a risk  
9 context what's the number of hundreds of feet of  
10 bridges we have, versus thousands of millions of miles  
11 travel, where the accident rate of falling off a  
12 bridge can be assessed? Again, it's a risk-based  
13 context, and if it's 10 to the minus 28<sup>th</sup> of something  
14 falling off a bridge, it's not a risk I'm too  
15 interested in.

16 MEMBER WEINER: No, the risk is  
17 considerable.

18 CHAIRMAN RYAN: Considerable is what?

19 MEMBER WEINER: It's not insignificant.

20 CHAIRMAN RYAN: Well, considerable doesn't  
21 help me, important doesn't help me. Give me a number.  
22 I mean, that's what it's all about, it's let's get a  
23 little quantitative, and that gives us the basis to  
24 form an opinion of whether we think rule making is the  
25 right way, or we can deal with --

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1 MEMBER WEINER: I'd be happy to supply the  
2 number.

3 CHAIRMAN RYAN: Well, I'm not asking you  
4 to supply it. These are the folks that are asking the  
5 question, so we can get them to supply it.

6 MEMBER WEINER: Allen had a point, and  
7 then Latif.

8 VICE CHAIRMAN CROFF: Yes. I'd like to  
9 build on what Mike said. I still feel I'm absent  
10 enough information to form a decision. My questions  
11 more relate to something I brought up before, just how  
12 often would this have to be used? I mean, there's  
13 places where they might like to use it, maybe it's a  
14 little bit more economic or something like that, but  
15 how -- what percentage, or how much fuel, or whatever,  
16 is this really proposed to be applied to? That seems  
17 to be an important thing - if it has to be used in an  
18 awful lot of stuff, that sounds more like a rule. If  
19 it's just a few instances, that sounds like an  
20 exception, to me.

21 CHAIRMAN RYAN: Have you had a public  
22 meeting like the decommissioning folks had to gather  
23 stakeholder views on how to proceed?

24 MS. OSGOOD: No.

25 CHAIRMAN RYAN: That might be an idea that

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1 you actually have a one-day workshop, where you invite  
2 stakeholders in to say - to give them the same  
3 presentation you gave us, and say what do you all  
4 think, or how could it work? And we'd certainly  
5 attend that, if you did, and that might be a way to  
6 help you really solidify why you're going down a  
7 particular path, and better inform management and the  
8 commission of what's the basis for your thinking  
9 there. That might be something to think about. I  
10 just offer that as a suggestion while we're sitting  
11 here chatting.

12 MEMBER WEINER: Well, that brings to mind  
13 something else. I understand that one of the reasons  
14 you wanted to come to the committee was that you've  
15 had at least one application for moderator exclusion.  
16 You haven't yet.

17 MS. OSGOOD: No, but applicants have told  
18 us that they are preparing to submit them.

19 MEMBER WEINER: Well, could those  
20 applicants in the interim be handled by the exclusion,  
21 by 71.55(c)?

22 MS. OSGOOD: I think possibly, yes. And,  
23 as a matter of fact, the one, the DOE-Idaho canister  
24 case, we do continue our technical dialogue with them,  
25 and we've, I think, gotten a lot of information from

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1       them that indicates to us that there is an alternative  
2       path than approval under 71.55(c) for the design,  
3       possibly for some fuels, but that we see that there  
4       may be a regulatory path alternative to moderator  
5       exclusion for that design.

6                   MEMBER WEINER:   Latif, you had a question.

7                   MR.   HAMDAN:   Yes.   Actually, I was  
8       thinking along the same line that Allen was thinking  
9       about, and that is, what is driver behind this?  Is it  
10      the  cost  of  transportation, the cost of the  
11      construction of the canister, that's one.  And number  
12      two, how many of those, how many applicants?  I think  
13      that has - you can handle individual applications  
14      under (c), but if you have zillions of them, that's  
15      completely a different story all together.

16                  MR.   DIAS:    Can I?

17                  MEMBER WEINER:   Nancy, go ahead, and then  
18      Antonio.

19                  CHAIRMAN RYAN:   I want to remind everybody  
20      we're running over our time, so we need to wrap-up.

21                  MS.   OSGOOD:   I think the answer to that is  
22      that essentially all spent fuel that -- we've got a  
23      number of spent fuel packages, including very large  
24      capacity casks that we've certified without needing  
25      moderator exclusion.  I think that yes, I think that

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1 it's cost, I think that the ease of doing an analysis  
2 where there's no water in the containment system,  
3 doing a criticality analysis with no water in the  
4 containment system is less of a technical challenge,  
5 than looking at the specific fuel types, and  
6 enrichments, and that sort of thing, so I think it's  
7 cost of maybe preparing the licensing application,  
8 cost of doing the analyses, a cask that relied on  
9 moderator exclusion would likely not require any kind  
10 of neutron poisons, would not probably require a  
11 basket that had structural strength, so there's - I  
12 think that there's a lot of incentives out there for  
13 applicants, but the bottom line is, basically, I think  
14 all fuels can be shipped in packages that don't rely  
15 on moderator exclusion.

16 MEMBER WEINER: Antonio, and then we'll --

17

18 MR. DIAS: I completely agree with Nancy,  
19 and it's exactly this, people do not want to have to  
20 perform criticality calculations because of the  
21 effort, and also because, in general, what results  
22 from this criticality calculations are a limitation on  
23 the number of fuel that they can actually choose to  
24 put in the transportation package, so you end up being  
25 penalized, if I can use that word, not only for the

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1 effort you have to do, but you end up having a subset  
2 of all the fuels that you have in your pool, if I can  
3 say that, that you can now use, so they would much  
4 rather have the freedom of not having to - which one  
5 can I use? Do I have to obey this, this, this? There  
6 are some rules, tables that come out of that  
7 criticality calculation.

8 MEMBER WEINER: Rob.

9 CHAIRMAN RYAN: We have to wrap-up.

10 MEMBER WEINER: Okay. Rob, and then we  
11 really do have to stop; otherwise --

12 MR. LEWIS: Just to follow-up on some of  
13 the comments by the committee and the staff about risk  
14 information and cost benefit of this. The staff  
15 agrees completely that we need risk information, and  
16 cost benefit information to make an informed decision  
17 about even proceeding with the rule making. Kind of  
18 at this point, where we are is, we're trying to be  
19 responsive to a stakeholder identified need, and we're  
20 trying to get into a process - I think the risk  
21 information and the cost benefit information in our  
22 vision happens during the regulatory analysis portion  
23 of the rule making, if the commission thinks, as a  
24 policy matter, that this is an issue for the staff to  
25 pursue via rule making.

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1                   CHAIRMAN RYAN:  And I guess I'm just  
2                   suggesting that before you get that formal process  
3                   underway, that a little bit more of laying that out  
4                   for everybody to understand might be helpful to gain  
5                   support for that decision, so there's some overlap  
6                   there.

7                   MEMBER WEINER:  Since we really are out of  
8                   time, I'll turn it over to the Chairman.

9                   CHAIRMAN RYAN:  Thank you very much.  We  
10                  do have some other matters that we have to take up, so  
11                  I'm going to suggest - and I thank you all very much  
12                  for a very informative period this afternoon.  It's  
13                  been very helpful, and we'll take a short 10-minute  
14                  break, and come back at 10 after, and reconvene for  
15                  our last session of the day.

16                  (Whereupon, the proceedings went off the  
17                  record at 4:02:37 p.m.)

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