

# Official Transcript of Proceedings

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UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION  
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 ADVISORY COMMITTEE ON NUCLEAR WASTE  
 (ACNW)  
 154<sup>TH</sup> MEETING  
 + + + + +  
 WEDNESDAY,  
 OCTOBER 20, 2004  
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 ROCKVILLE, MARYLAND  
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The Advisory Committee met at 10:00 a.m.  
 in the Auditorium of the Nuclear Regulatory  
 Commission, Two White Flint North, 11545 Rockville  
 Pike, Dr. Michael T. Ryan, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

MICHAEL T. RYAN, Chairman  
 JAMES CLARKE, Consultant  
 ALLEN G. CROFF, Member  
 RUTH F. WEINER, Member

ACNW STAFF PRESENT:

JOHN T. LARKINS, Executive Director  
 MICHAEL LEE

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ACNW STAFF PRESENT (Continued):

LATIF HAMDAN

RICHARD K. MAJOR

ALSO PRESENT:

ROBERT L. JOHNSON

CHRIS MCKENNEY

JAMES L. RUBENSTONE, Ph.D.

KING STABLEIN

MARK THAGGARD

C O N T E N T S

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P R O C E E D I N G S

(10:08 a.m.)

CHAIRMAN RYAN: Good morning. The meeting will come to order, please.

This is the second day of the 154th meeting of the Advisory Committee on Nuclear Waste.

My name is Michael Ryan, Chairman of the ACNW. The other members of the committee present are Ruth Weiner and Allen Croff.

During today's meeting the committee will hear an update on the status of the license termination rule from the NRC staff, receive an update on the consolidated issues resolution status report from the NRC staff, and continue its discussion of potential topics for inclusion in the 2005 ACNW action plan.

Mike Lee is the designated federal official for today's initial session.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. We gave received no written comments or requests for time to make oral statements for members of the public regarding today's sessions. Should anyone wish to address the committee, please make your wishes known to one of the committee's

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1 staff, and it is requested that speakers use one of  
2 the microphones, identify themselves, and speak with  
3 sufficient clarity and volume so that they can be  
4 readily heard.

5 Our opening presentation today is an  
6 update on the status of the license termination rule,  
7 and Robert Johnson is here to make that presentation.

8 Welcome and thank you for being with us.

9 MR. JOHNSON: Okay. Thank you. It's a  
10 pleasure to be here. I just have to get my mic  
11 situated. I guess that will give me some flexibility.  
12 Can everyone hear me?

13 Okay. I'm going to try to use this  
14 advancer, but if I skip ahead real fast, let me know.  
15 Like that, yeah. It's really touchy.

16 Okay. Just an outline for this morning's  
17 briefing. It has been, I think, since May of 2003  
18 that I briefed you last on the license termination  
19 rule issues, and at that time it was the results of  
20 our analysis, and so I want to go through some  
21 background just to fill in the gap in time, and there  
22 are some new folks that may not have had that  
23 background.

24 I'd like to talk about accomplishments in  
25 FY 2004, and our plans for upcoming activities during

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1 2005 to 2007 with respect to the LTR analysis actions.

2 And then just to give you some more in  
3 depth idea of how we're implementing some of the  
4 actions, we'll go through a couple of site specific  
5 examples.

6 And then lastly, to end it, we'll throw  
7 out some ideas for potential ACNW reviews of our  
8 future work, and maybe we can discuss and get some  
9 feedback from you on what you might feel would be  
10 useful and of interest to you.

11 Okay. A little bit of background on the  
12 LTR, but before I guess I do that I should say that  
13 the LTR work past and future has always been a team of  
14 people working on, as you can tell, a variety of  
15 issues, and some of those people are in the audience  
16 today. So for some of the examples that I might talk  
17 about if you have detailed questions that I can't  
18 answer, I'll have some help hopefully from the  
19 audience, and that way we can hopefully address the  
20 questions that you might have.

21 Going to the background though, the LTR  
22 analysis of the eight issues, the Commission paper was  
23 done in May of '03 and then we briefed ACNW also in  
24 May of '03. The Commission approved the actions for  
25 the eight issues in November of '03, and then there

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1 was a ninth issue on intentional mixing of soil. That  
2 analysis was completed in March. The Commission  
3 approved the actions for that particular issue in May,  
4 and then as you recall, the ACNW was briefed this  
5 summer in July on that particular issue.

6 So that sort of fills the gap a little bit  
7 about where we've been since we briefed you last. Now  
8 I'd like to turn to accomplishments in FY '04, and  
9 these are the actions that really follow what we have  
10 in the budget. We're basically still following the  
11 original plan we had in the SECY paper for those  
12 activities that have been budgeted, and even the  
13 planned activities that I'll talk about later are  
14 those that have been and continue to be budgeted.

15 And that means their schedules are the way  
16 they are because of the budget that we have.

17 Of course, accomplishments in '04 was the  
18 completion of the Commission paper on intentional  
19 mixing, and then the Commission approval of all the  
20 staff's recommendations. I'll go over those in a  
21 minute. A couple of my slides coming up kind of  
22 remind you what the nine issues were, and then issue  
23 by issue I'll just sort of touch upon, you know, what  
24 the Commission approved and maybe some of the comments  
25 that they had. They had a few comments relative to

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1 some of those issues.

2 So that will be sort of a refresher on  
3 what the issues were or what the issues are and what  
4 the Commission had to say about them.

5 The other major accomplishment this year  
6 was the completion of the regulatory issue summary, or  
7 the RIS, as we call it. I'll talk about that a little  
8 more in a moment.

9 And then lastly the accomplishments  
10 focused on some site specific implementation relative  
11 to institutional controls and realistic scenarios, and  
12 those are the examples that I'll talk about later in  
13 the presentation.

14 Let's look first at the regulatory issues  
15 summary published this past May, and its purpose was  
16 really to inform licensees and stakeholders of the LTR  
17 analysis results. It basically boiled down 130 pages  
18 of the staff Commission paper into about 13 pages.  
19 That was maybe a little easier for people to kind of  
20 read in one sitting, and if they are interested, then  
21 they can go and get more detail.

22 It also identified opportunities for  
23 stakeholder comment and invited early feedback as we  
24 proceed with some of our activities. It summarized  
25 the analysis that the staff had done for the nine

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1 issues all combined. Since the eighth and ninth one  
2 on mixing were separated in time we wanted to wait for  
3 the RIS and combine all of the issues together so that  
4 it would be easier for stakeholders to have one  
5 document that was short, hopefully digestible and  
6 under one cover.

7 The RIS then also includes the Commission  
8 approvals and any comments that the Commission had  
9 relative to each issue. So people could get a whole  
10 picture, you know, in digest form of the analysis and  
11 the results of the Commission's comments.

12 The RIS was really a final action for two  
13 of the issues. The .05 weight percent not being used  
14 as a decommissioning criteria was one of the issues  
15 where we just, you know, completed our work and  
16 described and gave that conclusion in the RIS.

17 And then the issue on developing a  
18 separate uranium and thorium standard was also -- just  
19 the whole description of that, you know, was completed  
20 and documented in the RIS, and there's no further  
21 actions planned for either of these two issues.

22 The Commission also approved the staff  
23 recommendation to begin implementing approved options  
24 for institutional controls and realistic scenarios and  
25 not wait for the actual draft guidance to be developed

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1 to begin working on those issues, and that's  
2 particularly for institutional controls for licensees  
3 that may express an interest in using those. We do  
4 not want it to delay decommissioning progress and  
5 wanted to proceed with those where there was a desire  
6 by licensees.

7 Bear with me. Okay. I'll just go down  
8 each of the nine issues here in brief and start with  
9 institutional controls, and the Commission approved  
10 the recommendations for a risk-informed, graded  
11 approach, some new options for NRC monitoring and  
12 enforcing under the LTR, and particularly that's under  
13 a legal agreement, and a deed restriction where NRC  
14 would be mentioned in the deed restriction. That's  
15 one new option.

16 The second new option is the long-term  
17 control license that I'll talk about more in a minute.  
18 So the Commission approved those new options, but in  
19 particular, they requested public comment on the draft  
20 guidance, and those comments be shared with them  
21 before the guidance was finalized. So they're very  
22 interested in what stakeholders will think about these  
23 issues, and of course, our plan for developing the  
24 guidance will include we have to make time to prepare  
25 a Commission paper that will share the comments with

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1 the Commission that we get on particularly  
2 institutional controls, but probably other issues as  
3 well if we have comments.

4 With respect to the issue on unimportant  
5 quantities, the Commission approved the recommendation  
6 of the staff that the .05 weight percent is not to be  
7 used as a decommissioning criterion.

8 Similarly, the Commission approved the  
9 staff's recommendation that a separate uranium and  
10 thorium on restricted release standard should not be  
11 developed.

12 And then with respect to the issue on on-  
13 site disposal standard, the Commission approved the  
14 staff's recommendation to use the current practice of  
15 a few millirem on a case-by-case basis for approval.

16 They also approved another recommendation  
17 the staff had to use up to 100 millirem as long as  
18 there was sufficient financial assurance to cover the  
19 difference there.

20 In addition the Commission commented that  
21 we should add a third option of allowing 25 millirem  
22 without financial assurance and for short-lived  
23 radionuclides.

24 But the idea is that, yo know, there would  
25 be decay to unrestricted levels probably within, you

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1 know, a few years and, therefore, financial assurance  
2 might not be necessary.

3 With respect to the next issue on  
4 describing the relationship between the LTR and  
5 control of disposition of solids, the Commission  
6 approved our description in the RIS, asked us to  
7 provide that in a RIS, but they also asked us to  
8 clarify statements that were made in the SECY document  
9 that reduction in conservatism in the LTR analysis  
10 might have some impact on off-site use, and I'll  
11 explain that briefly for a minute.

12 What we meant there was in past practice  
13 it was believed that the on-site use using the default  
14 resident farmer would probably bound any off-site use,  
15 and so there wasn't a requirement to analyze off-site  
16 uses.

17 When we came up, of course, with the more  
18 realistic scenario approach, you know, the Commission  
19 said, "Well, if you're moving toward more realistic  
20 scenarios and away from the resident farmer, what  
21 impact might that have?"

22 And so in the RIS we explained that the  
23 realistic scenario approach should also consider if  
24 off-site uses were reasonably foreseeable, in addition  
25 to just on-site uses.

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1           So in coming up with, you know, an  
2           identification of the critical group, the potential  
3           for off-site use should also be considered, and if it  
4           is, then you would analyze it. So the idea here is  
5           that for realistic scenarios you should be covered  
6           even if off-site uses are reasonably foreseeable.

7           So that was the approach that we explained  
8           in the RIS, and we'll probably have some follow-up  
9           guidance in the guidance base, you know, when we  
10          develop this further.

11          That kind of leads into the next issue on  
12          realistic exposure scenarios. The Commission approved  
13          using the reasonably foreseeable land use approach  
14          recommended by the staff.

15          Changes to financial assurance to prevent  
16          future legacy sites. they approved our  
17          recommendations to move forward with guidance and a  
18          rulemaking, but some of their comments indicated that  
19          they wanted us to, again, seek public comment on some  
20          of the proposals that we had. And there were a number  
21          of them.

22          I didn't plan on getting into those today,  
23          but you can see what the comments were in the RIS and  
24          see if you have interest in those, but they will be  
25          incorporated into our proposed rule and our guidance,

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1 and of course seeking public comment on those items  
2 that the Commission wanted us to do that for.

3 The next one is changes to licensee  
4 operations to prevent future legacy sites. The  
5 Commission approved our recommendation for operating  
6 facilities to minimize contamination, increase  
7 licensee monitoring and reporting for high risk sites.

8 Now, along with that recommendation was  
9 the idea that the staff would develop a risk informed  
10 and performance based approach to identify sites that  
11 might have a high risk or activities on site, that  
12 might have a high risk of contamination, and therefore  
13 causing future decommissioning problems.

14 Now, you might recall this issue. When we  
15 looked at lessons learned, for the site we had today  
16 how do we get here for some of these sites? The idea  
17 is, well, you may have had chronic spills over a long  
18 period of time that weren't detected or maybe they  
19 weren't reported and our inspections, you know,  
20 weren't looking for those things.

21 And so the goal here is to come up with an  
22 approach that would identify those sites that we  
23 should focus -- that licensees should focus their  
24 attention on and maybe have more monitoring and  
25 reporting, if necessary.

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1           And then for NRC we would focus  
2 inspections on these facilities or on the activities  
3 in the facilities to try to prevent any activities  
4 that might create future decommissioning problems.

5           The Commission did have a comment though,  
6 I guess, when we developed guidance on monitoring  
7 requirements. The point of how much of monitoring is  
8 enough for this particular case, and so they want us  
9 to be careful with that and be limited in our data  
10 requests and look carefully at how much is enough, but  
11 don't go overboard. That's how I read their comment.

12           You can appreciate that, I think, and  
13 we'll address that in guidance development.  
14 Intentional mixing, you heard from that recently.  
15 They approved the current practice of mixing to meet  
16 waste acceptance criteria. They approved the staff's  
17 recommendation for meeting the LTR criteria in limited  
18 circumstances and on a case-by-case basis.

19           Okay. Let's move ahead to what's on the  
20 horizon. What's coming up in '05 to '07? You may  
21 have heard this before, but basically the first part  
22 is to develop decommissioning guidance, to revise  
23 guidance in the NUREG 1757. It would focus on four  
24 issues: institutional controls, on-site disposal,  
25 realistic scenarios and intentional mixing.

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1           So we'll follow up and expand upon the  
2 work in our commission papers to develop draft  
3 guidance for public comment.

4           We're looking to stakeholder involvement.  
5 We want to explore the grievant statement, for  
6 instance, participation and development of the  
7 guidance very similar to what was done for NUREG 1757.  
8 We found that very useful and valuable, both helping  
9 us out, but also helping out those agreement states  
10 that participated.

11           And we're expecting some form of early  
12 stakeholder input and possibly a meeting or workshop  
13 are that follows on recommendations from the committee  
14 on intentional mixing, that it would be useful to get  
15 feedback from licensees that might use this material  
16 up front, before we start developing guidance.

17           So we do intend to do that. Exactly how  
18 many and when, you know, we have to work out.

19           And then the draft guidance is supposed to  
20 be provided or published in September of '05 and a  
21 final in '06.

22           Looking ahead to an activity that's  
23 planned for FY '05 principally, the inspection and  
24 enforcement procedures for operating sites, and this  
25 is what I just talked about a little bit. It will be

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1 focused on enhancing monitoring reporting, itemizing  
2 contamination, developing this risk informed approach,  
3 identifying those sites and then writing the revised  
4 procedures, and that will be during the course of this  
5 year.

6 The other activity that's planned is  
7 developing a rulemaking and supporting guidance for  
8 those two issues that relate to preventing future  
9 legacy sites, and these are the changes in financial  
10 assurance that we have in mind, changes in licensee  
11 operations that I just talked about.

12 And right now, even though we will be  
13 starting that proposed rulemaking this year, it's  
14 scheduled for publication in '06, and then a final  
15 rule and guidance in '07.

16 Now I'd like to move on to some specific  
17 examples. First, with respect to institutional  
18 control options, at the Shieldalloy site in Newfield,  
19 New Jersey, and just a little bit of background.

20 This is a site, like I said, in Newfield,  
21 New Jersey. It used to be and still is a  
22 manufacturing facility for specialty steels and super  
23 alloys, aluminum alloys. In the past they processed  
24 ore containing columbium, which they used in their  
25 alloy process.

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1 Well, the ore also contained uranium and  
2 thorium. So when they went through a smelting process  
3 to separate out the columbium from the rest of the  
4 material, they ended up with slag that contained  
5 uranium and thorium in amounts greater the .05 weight  
6 percent. So they became a licensed process and  
7 facility.

8 And what they have right now is about a 68  
9 acre site made up of eight acres of storage yard where  
10 the slag pile and bag house dust pile is, and then the  
11 rest of their 60 acres, that's where their current  
12 manufacturing facilities, buildings are located, and  
13 they're right outside of Newfield, a small town, you  
14 know, across from a bank, and there's residential  
15 areas nearby. There's other industrial areas nearby.  
16 There's farming, you know, adjacent to their site. So  
17 it's a mix, and they're right on the outskirts of a  
18 small town, maybe 1,500 people. So they're an  
19 industrial facility, but they have a lot of variety of  
20 land use surrounding them.

21 Well, this is a few years ago when they  
22 first submitted their decommissioning plan for  
23 restricted release, but it was reviewed and rejected  
24 by the staff. They had at that time no acceptable way  
25 for providing long-term institutional controls or the

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1 financial assurance that needed to go along with it or  
2 the public involvement that's required by the license  
3 termination rule for these kind of sites. So those  
4 were the reasons for why they were rejected.

5 Rejection came at about the same time that  
6 our SECY paper came out with options like the long-  
7 term control license, and so Shieldalloy expressed an  
8 interest in trying out the long-term control license,  
9 and so it certainly serves as a first example of  
10 applying the risk informed, graded approach and  
11 applying the long-term control license, and that's why  
12 I wanted to use it as an example today.

13 Well, one other bit of background that I  
14 just overlooked in my notes is just for a perspective  
15 general round figures. The amount of slag they have  
16 is about a million cubic feet of slag of bag house  
17 dust, and by their estimates, it would cost about \$100  
18 million for off-site disposal in contrast to, again,  
19 their estimates that will be revised when they  
20 resubmit their DP, but around five million for leaving  
21 it on site with restrictions on use. So there's quite  
22 a contrast in cost and also they have had a history of  
23 bankruptcy. They have a similar site in Cambridge,  
24 Ohio that they came out of bankruptcy and had an  
25 agreement to, again, use restricted release and build

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1 disposal cells on the Cambridge site, again, with the  
2 similar slags, similar process, and everything.

3 So Ohio being an agreement state, you  
4 know, there's sort of a parallel approach here, and  
5 we, in fact, drew upon some of the experiences that  
6 Ohio had with their intent to use the decommissioning  
7 possession only license for that site in Cambridge.

8 So we have sort of a parallel process and  
9 examples going on here. In any event, ShieldAlloy  
10 needed guidance to prepare their revised  
11 decommissioning plan, particularly for the long-term  
12 control license. So we moved forward to prepare some  
13 interim guidance in May of '04, and we expect that  
14 this interim guidance will evolve and we'll fold it  
15 into our draft regulatory guidance in '05.

16 This interim guidance, as I'll talk about  
17 in a minute, contains some basic concepts because the  
18 understanding as we worked with Shieldalloy and  
19 others, the understanding of this possession only,  
20 long-term control license was new, and it was sort of  
21 we were trying to explain it and get the idea across.

22 And so concepts are important to grasp  
23 first, and we included that in the interim guidance,  
24 and then we included section by section in the  
25 decommissioning plan, what information they needed to

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1 submit when they resubmitted their guidance.

2 I should mention here that the interim  
3 guidance and the interest that Shieldalloy has in  
4 using it has certainly got the attention of the State  
5 of New Jersey. They've written two letters to the  
6 Chairman saying that they object to restricted use  
7 they object to the long-term control license, and they  
8 believe the policy is sort of a first of a kind  
9 experience in kind of a proving ground, you know, for  
10 something that's new that has been untried.

11 And the first letter the Chairman  
12 responded, emphasizing that the LTR allows the  
13 restricted use option, assuming that the licensee can  
14 meet the requirements in the license termination rule,  
15 and that's an important point, you know. This is an  
16 option that they have proposed to use, and they still  
17 have to submit their decommissioning plan. They have  
18 to still demonstrate to us that they have met the  
19 requirements, and we would have to review those, that  
20 demonstration, and approve it.

21 So there's nothing approved. It's just  
22 that we're moving forward with trying out this option  
23 at this point in time.

24 But the Chairman also emphasized that the  
25 long-term control license would enhance the long-term

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1 control because the federal government stays in the  
2 picture. NRC stays in the picture.

3 So that's an enhancement to long-term control,  
4 and the fact that the policy is untried and so forth,  
5 we pointed out in our response that really the  
6 development of license was based on the ten years of  
7 general license experience for the mill tailings  
8 program. It was also based, like I said, on the State  
9 of Ohio's intent and experience to use a similar  
10 license.

11 CHAIRMAN RYAN: Robert, just a quick extra  
12 point on that last bullet.

13 MR. JOHNSON: Yes.

14 CHAIRMAN RYAN: I think it strikes me,  
15 too, that -- there you go, that one, the last one  
16 there -- that not only is there long-term control from  
17 the licensing standpoint, but there's also I would  
18 think from the state's perspective involvement for  
19 financial assurance.

20 You've talked a little bit about that  
21 already, and I guess my own view is that that's a  
22 significant increase, and it's probably a more  
23 realistic treatment of financial assurance and  
24 disposal cost monitoring and all of the things you've  
25 mentioned.

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1 Is that a fair summary on my part?

2 MR. JOHNSON: Yes, and it's one of the  
3 concepts I'll get into in a moment in a little more  
4 detail, but that goes hand in hand. It's not only who  
5 stays, but who's going to pay.

6 CHAIRMAN RYAN: Right.

7 MR. JOHNSON: How are they going to do it  
8 and, you know, that's how it's going to work in the  
9 long term if the funds are available, and how are they  
10 available?

11 And of course, the state was concerned  
12 about bankruptcy and ownership, and I think the  
13 Financial Assurance Trust Fund approach is an answer  
14 for that, and we explain that in our response back to  
15 them.

16 But you can see that this issue, of  
17 course, plays out across the country. A lot of the  
18 same concerns are being raised, and this is our answer  
19 to those.

20 DR. CLARKE: Robert, I think you said  
21 originally that when they submitted their  
22 decommissioning plan it was rejected, and one of the  
23 reasons it was rejected was the financial assurance  
24 piece. Is that because the options that they now have  
25 weren't in place or they still have to come up with

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1 financial assurance, do they not?

2 MR. JOHNSON: Their original DP did  
3 recognize they needed financial assurance for the long  
4 term part of it. It was the amount, you know, that  
5 was determined, and of course, that's part of the  
6 picture, you know. What's the cost estimate for the  
7 long term? And then how do you calculate the fund  
8 based on that?

9 And so that was one of the comments that  
10 we had back to them, and they know they'll have to  
11 revise that based on our guidance.

12 DR. CLARKE: And while I have you, will  
13 the new guidance help them with that calculation?

14 MR. JOHNSON: Yes, it will. Yeah, just to  
15 answer it now, it's based on what's your cost estimate  
16 for annual activities, you know, whether they be  
17 surveillance, any maintenance or repair, or any  
18 monitoring if monitoring is needed.

19 So that annual cost, the licensee will  
20 need to lay out those activities and lay out the cost  
21 of those activities and then look at the annual cost  
22 of them.

23 Then the fund amount is calculated based  
24 on one percent of the interest income off of that fund  
25 needs to pay for that annual cost of whatever

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1 activities are planned. And we ask them to assume one  
2 percent annual return interest income, and that's  
3 consistent with what uranium recovery sites us under  
4 Part 40, Appendix A.

5 DR. CLARKE: Thank you.

6 MR. JOHNSON: Because they're long-term  
7 sites, too. So we figured we should be consistent  
8 with their approach.

9 Okay. Some of the key concepts, to get on  
10 the right page here. First and foremost is the  
11 current license that exists. Our plan right now is to  
12 amend that current license, not terminate it and start  
13 a new one.

14 That may sound like a housekeeping thing,  
15 you know, and certainly it sounds better if you're  
16 going to terminate the license. Essentially we are,  
17 but when you terminate the license our agency records,  
18 the docket file gets stopped and a new one is set up,  
19 and we felt that there's an advantage to keeping the  
20 agency records all together in one docket file for the  
21 long term.

22 You know, anything can happen, and things  
23 can get divided up and separated and possibly  
24 confused. It's important to have the site history in  
25 the docket file that exists today to be continuous,

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1 you know, with the future files that will be kept  
2 during the course of this if it should proceed.

3 Well, of course, having a license changes  
4 NRC's role. The original LTR did not contemplate NRC  
5 role. So this is a new role I'll talk about in a  
6 moment.

7 The second concept is people really need  
8 to understand we're not just continuing the current  
9 situation, you know. All of the requirements in the  
10 LTR for restricted release have to be met, and there's  
11 requirements for financial assurance. There's  
12 requirements for public involvement.

13 Of course, there's the dose criteria  
14 requirements both with controls and without controls.  
15 They all have to be met, and so really what does the  
16 license do? The license satisfies the requirement for  
17 a legally enforceable institutional control. So the  
18 license is the institutional control. It's a form of  
19 government control.

20 But keep in mind they have to meet all of  
21 the other requirements as well, and the eligibility  
22 requirements. They have to show that restricted  
23 release is as low as reasonably achievable. So all  
24 of those requirements haven't changed. They're not  
25 getting off or anyone who has used this is not getting

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1 off with, you know, less clean-up. They have to meet  
2 the requirements that have existed in the LTR.

3 Look at roles. The licensee's role here  
4 is clearly to provide the controls on access to the  
5 site and land use in the future, to provide the  
6 surveillance, the maintenance if needed, monitoring if  
7 it's needed, any repairs, reporting to NRC and local  
8 communities, records retention for their records, and  
9 stakeholder involvement. The LTR requires that up  
10 front to involve stakeholders, particularly where a  
11 restricted release institutional controls are  
12 provided.

13 What's the NRC's role? Well, it's nothing  
14 really new. It's our typical oversight to assure  
15 licensee's controls are effective. We would include  
16 inspections. We would include what we call five-year  
17 renewals. So that's similar to the five-year review  
18 process that is required in the LTR for durable  
19 institutional controls and similar to EPA's five-year  
20 reviews.

21 We just would call it a five-year license  
22 renewal process. We of course could also do  
23 enforcement, and we would also provide all of the  
24 maintenance of all the records for the license, like  
25 I said, past and present, past, present and future.

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1 And they're available just like records are today to  
2 any stakeholders.

3 Another key concept that was difficult to  
4 work out was maintaining the current site -- the  
5 license would maintain the current site boundary, but  
6 within it, you would have a restricted area probably  
7 like the eight acre area that I talked about where the  
8 slag pile is, and then you would have 60 acres of  
9 unrestricted use area. But it would still be under  
10 the license.

11 And the reason that we have for keeping it  
12 that way is that the unrestricted use area could be  
13 used for industrial purposes or whatever purposes  
14 would be decided, but we would want to make sure that  
15 if there was monitoring needed in that outside area,  
16 that that monitoring would be maintained.

17 We would also want to make sure that NRC  
18 has prior approval of any sale of the property, and  
19 that the site, the whole site, could not be split up  
20 and let's say parts of the unrestricted use area sold  
21 off, thus leaving a small appendage of the restricted  
22 use area.

23 And we feel this approach, you know,  
24 should assure ongoing monitoring, but it also should  
25 assure ongoing protection of the whole property by the

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1 licensee, and we feel that that will also maintain the  
2 value of the site.

3 The unrestricted area currently has  
4 manufacturing facilities there, and it has railroad  
5 spurring. There's a lot of value in that property, in  
6 the unrestricted area for future use. And that will  
7 maintain the value of that piece of property, and it  
8 will insure or it will help insure future sale of that  
9 property.

10 Obviously it's going to change hands as we  
11 go into the future, and so maintain ownership,  
12 especially at the private sites like this, I think  
13 it's an interesting question. How do you maintain  
14 that?

15 I sort of skipped ahead to that bottom  
16 one. I'll come back to financial assurance in a  
17 minute, but I just wanted to make sure I got all of  
18 those points, and maintaining ownership and control.

19 I said prior approval of transfers. Well,  
20 that's also to make sure that the future owner who  
21 will become a licensee may have to agree to become a  
22 future licensee or they won't be a future owner in  
23 this case, but that they also have the capability, the  
24 expertise to continue the monitoring, maintenance,  
25 whatever work has to be done, you know, for the

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1 restricted part of the site.

2 There's always a question with transfer of  
3 ownership. What if the owner can't perform the  
4 activities? Maybe there's bankruptcy, some  
5 abandonment or whatever.

6 We addressed that in the guidance as best  
7 we could, but we certainly found that this was a new  
8 area for us to think about. So maybe all of the  
9 answers aren't out here yet, you know, We may learn  
10 more in this area.

11 But we have to be reminded that  
12 enforcement authority for the licensee regardless of  
13 where they are. They can be sought after.

14 In the event that the licensee isn't  
15 around to perform the activities, a couple of things  
16 could be done. The trustee, which is the financial  
17 trustee -- they're holding the funds. Okay? -- could  
18 be directed to seek a contractor to continue the  
19 monitoring and maintenance.

20 NRC might also have another option of  
21 having a court appointed custodial trustee set up,  
22 different than the financial funding trustee.

23 So it sort of gets complicated, but it's  
24 an important point. You know, you've got to think  
25 about these things for sites that are going the long

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1 term.

2           Going back to sufficient financial  
3 assurance and trust, I think I already maybe talked  
4 mostly about that, but it is based on the annual cost  
5 estimate that will be in the decommissioning plan, and  
6 the LTR. One of the requirements is sufficient  
7 financial assurance, and so that will be one of the  
8 requirements, and that will be one of the things that  
9 we and other parties, stakeholders will review.

10           And stakeholders are required to or not  
11 required, but they're invited to provide their  
12 comments on the sufficiency of the long-term costs,  
13 you k now, for this. So the licensee, in case  
14 Shieldalloy in this case, will need to address that  
15 with her stakeholders and get whatever advice  
16 stakeholders might have, including the State of New  
17 Jersey and other affected parties.

18           But we feel the trust fund is an important  
19 mechanism to provide for that annual cost, including  
20 our fees. Whatever fees we have, we do inspections  
21 for the five-year renewal. We've given them guidance  
22 on what we think our activities would cost in fee  
23 space to add into their own cost and add into the cost  
24 of having a trustee, financial trustee.

25           And so that's our current approach. We

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1 would expect that that information would be revised by  
2 Shieldalloy when they resubmit their DP.

3 This site we use the risk informed, graded  
4 approach to institutional controls. It's kind of a  
5 simple example for using that. In the first part of  
6 the graded approach is that based on hazard duration  
7 and hazard consequence, you would determine if you  
8 would use kind of routine, legally enforceable  
9 controls or whether you would be able to justify  
10 durable institutional controls, for instance, federal  
11 ownership or federal control. In our case under the  
12 license it would be federal control.

13 We felt in our approach that sites with  
14 long-term radionuclides, uranium and thorium, that's  
15 part of the justification for needing durable controls  
16 because it's long-term control that you're looking  
17 for, you know, over hundreds of years, and therefore,  
18 a durable form is needed surely based on the duration  
19 of the hazard.

20 Now, we'll also see the results in their  
21 revised DP on the dose results. I don't know those  
22 yet. We'll see what their remodeling comes up  
23 with, but you know, they're required to analyze and  
24 come up with a dose assuming controls fail, and so  
25 based on those dose estimates, that could also justify

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1 the durable controls.

2 Part of the risk-informed approach is for  
3 the licensee to tailor controls to their particular  
4 site, to mitigate potential failures that they see as  
5 being reasonable both for institutional controls and  
6 engineered barriers.

7 Certain conditions, therefore, would be  
8 kind of put into the license to particularly monitor  
9 or do surveillance, you know, for those things that we  
10 think could fail, and that would be significance of  
11 performance.

12 A lot of things can happen to the site,  
13 but part of what asked Shieldalloy to do was use  
14 sensitivity analyses and try to determine which of  
15 these things that could happen, could fail, would be  
16 important to meeting the dose criteria.

17 So in that sense it's performance based.  
18 In that sense it's using the results of dose  
19 assessments, and it's therefore risk informed.

20 We'll see how all of this plays out in the  
21 DP because it will be an example, you know, for all of  
22 us to review and see how they approached it.

23 Looking at engineered barriers, that was  
24 another concept that we talked about in the guidance.  
25 We've indicated they need to evaluate the contribution

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1 of any engineered barriers that are used to  
2 compliance. Again, they should be using sensitivity  
3 analyses.

4 The slab being uranium and thorium, the  
5 thorium is the primary risk here for direct exposure.  
6 So shielding in a cover, you know, for the long term  
7 might be important, and then how could that shielding  
8 fail. Could it erode and expose the slag?

9 And therefore if that's true and that's  
10 important, then erosion control would be important for  
11 them to design and implement.

12 Another item we said that we did not feel  
13 that they should rely on whatever engineered barriers  
14 they had. They should not rely on active, ongoing  
15 maintenance and repair. They should be robust; they  
16 should be passive; they should be more like covers  
17 used maybe for mill tailing sites. That's what a goal  
18 should be.

19 Because part of the analysis is to assume  
20 failure of institutional controls, and when you assume  
21 failure of institutional controls, then your  
22 maintenance goes away. Any monitoring or any  
23 surveillance and maintenance goes away, and you would  
24 have to analyze how any barriers you use would degrade  
25 over time.

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1           So if they degrade quickly and you can't  
2 meet the dose criteria, then you've got to see how to  
3 make them more robust and not as dependent on  
4 maintenance.

5           Last, here on finality, this is an  
6 important concept that's already in the license  
7 termination rule. It's important to industry that  
8 when we're done and terminate a license, we're done.

9           And the statement you might remember is in  
10 1401(c) indicates that future clean-up would only be  
11 done if there was a significant risk, if there was a  
12 significant risk to public health and safety.

13           And that concept and our guidance, we said  
14 that concept still applies to this long-term control  
15 license. so that people that might worry, well, it's  
16 still under an NRC license. Maybe they will want to  
17 have more clean-up done in the future, and we feel  
18 that finality is important in that concept that's  
19 already in the license termination rule is also  
20 important to this kind of a site.

21           I was going to move on to realistic  
22 scenarios now. If you had any questions on  
23 institution controls in this example, we could either  
24 do them now or do them afterwards. It's up to you.

25           CHAIRMAN RYAN: I'd say keep rolling.

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1 MR. JOHNSON: Okay. Keep rolling. Okay.

2 Shifting into examples for implementing  
3 the realistic scenario approach, I just lifted here  
4 this year 11 decommissioning sites that are in various  
5 stages of implementing the realistic scenario approach  
6 that was in the LTR analysis.

7 As you'll see, we've got two power plants  
8 at the end and we have West Valley, and then the rest  
9 are material sites. Some of these examples I would  
10 say when completed are going to be good case studies.  
11 They're going to be good lessons learned, you know,  
12 for other licensees to look at and see if it's similar  
13 to their situation.

14 But of course, all of these are site  
15 specific, but I think they do illustrate approaches,  
16 in general.

17 The first one I wanted to look at was  
18 Fansteel, and this is a facility located in Muskogee,  
19 Oklahoma. It processed ores that also contain uranium  
20 and thorium. In 2002, they filed for bankruptcy, and  
21 their goal is unrestricted use. They're taking a  
22 phased approach to decommissioning, and they have very  
23 limited funds, of course, because of the situation  
24 they're in.

25 They proposed use of an industrial

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1 scenario as a reasonably foreseeable land use, and  
2 this was based on primarily as I understand it the  
3 Port of Muskogee on the Arkansas River, the sites on  
4 the Arkansas River.

5 To the north adjacent to the site is the  
6 Port of Muskogee and its facilities. The port is also  
7 interested in purchasing part of the site in the  
8 future to expand their facilities.

9 Like I said, the Arkansas River is on the  
10 east bordering the site, and then you have highways on  
11 the other side of the site, and there's a fossil fuel  
12 plant across the river.

13 And so the staff reviewed the licensee's  
14 proposal, followed up with the port and its interest  
15 in purchasing and expanding its facilities in the  
16 future, and so the staff supported the use of the  
17 industrial scenario by the licensee.

18 However, the State of Oklahoma challenged  
19 that decision and proposed that a resident farmer,  
20 primarily a resident farmer scenario might be more  
21 appropriate because there are farms in the area,  
22 across the river and all.

23 The Atomic Safety Licensing Board reviewed  
24 the licensee and staff's analysis, as well as the  
25 Oklahoma's basis and upheld the staff's decision for

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1 the industrial scenario for that site.

2 So it serves as an example. Of course,  
3 it's based on the reasons that were given at this  
4 particular site, but it does illustrate an example of  
5 using an industrial scenario, not a residential farmer  
6 and having it challenged by a state and then having it  
7 upheld by Atomic Safety Licensing Board.

8 The second example is Kiski Valley. This  
9 is a non-licensee. It's a waste water treatment  
10 facility in Pennsylvania. They treated sewage sludge  
11 by incineration, disposed of the sludge ash in an on-  
12 site lagoon. The contamination is enriched uranium  
13 that came from a Sanitary sewer release from the B.W.  
14 Apollo facility years ago.

15 So not being a licensee, part of the  
16 process was for the staff to do a dose assessment,  
17 which was done and then reported on in a Commission  
18 paper.

19 The staff used reasonably foreseeable land  
20 use scenarios. The staff felt that on-site, in place  
21 in the lagoons, no action was the approach to analyze.

22 We used a recreational use scenario as a  
23 river par, and the dose resulting was about one  
24 millirem from that scenario.

25 But part of the realistic scenario

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1 approach is to consider input on land use from state  
2 officials, land use planners, and in this case  
3 Pennsylvania felt that a reasonably foreseeable  
4 approach would be removal of the material for off-site  
5 disposal.

6 Staff analyzed that as well, and the  
7 worker excavation of the material would result in  
8 about a 15 millirem exposure dose, and then the  
9 landfill, initial disposal of landfill, was bounded by  
10 another scenario that the staff did.

11 The staff did some less likely use  
12 scenarios to kind of bound the uncertainty, and that's  
13 part of this approach for realistic scenarios as well.  
14 You would base compliance on what you think is  
15 reasonably foreseeable, but there may be other  
16 scenarios that you want to analyze to see, you know,  
17 what's the result and the uncertainty.

18 The results of, I guess, the scenarios  
19 that were analyzed here was an agricultural scenario  
20 as well as a resident intruder, and both of those  
21 resulted in about a 20 millirem does.

22 And so it was felt that the analysis of  
23 the agricultural one on site would bound the disposal  
24 in an off-site location. So you get an example here  
25 of a number of things.

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1           You know, what's reasonably foreseeable,  
2 involving a state in this case also saying what they  
3 think is reasonably foreseeable. And part of that was  
4 an off-site use, and so it's not just on-site use.

5           If off-site use is determined reasonably  
6 foreseeable, then it should be analyzed, and so this  
7 example, I think, shows a lot of different aspects of  
8 the staff's approach.

9           The Commission approved this commission  
10 paper and moving ahead with no action, and so, you  
11 know, it went through their review and approval, and  
12 therefore, again, it's an illustration of this  
13 approach that the staff is using for this kind of  
14 site.

15           I'd like to end on kind of reminding you  
16 where we were going in '05 and suggest that we think  
17 it would be useful as we develop our draft guidance on  
18 institutional controls and scenarios and mixing that  
19 we involve ACNW in the review of that draft guidance  
20 before it goes out for public comment.

21           The question would be, you know, when.  
22 Our schedules aren't set up, and so this would be a  
23 good time to, you know, think about it and give us  
24 your feedback. It might be springtime, you know if  
25 you think about doing some draft work and then meeting

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1 with you and having you have time to review it and  
2 give us feedback so that we can publish it by  
3 September.

4 But here we are in October. So you know,  
5 we can kind of divide up the year and see how we can  
6 get the job done, if you feel that reviewing would be  
7 something that's important and of priority to you.

8 The second thing that might also be of  
9 interest and use to us is this risk informed approach  
10 that I mentioned earlier for operating sites to  
11 identify which operating sites or activities on those  
12 sites would be considered high risk.

13 And how do we do that? How do we apply  
14 it? How do we factor it into our procedures. It's  
15 going to be interesting. It's new. To me it's not  
16 something that we -- we don't often do this every day,  
17 you know. So it would be useful, I think, to get  
18 review of the staff's approaches or ideas from the  
19 committee.

20 So those are two ideas to throw out for  
21 discussion and for your thoughts, and if there is  
22 interest, then maybe we can proceed with some more  
23 details on schedules and you know, all of that as we  
24 develop our plans in the next month of so.

25 And that ends my presentation, and any

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1 questions, I'll try to answer any questions you might  
2 have or seek help from those in the audience.

3 CHAIRMAN RYAN: Well, Robert, thanks for  
4 a real informative presentation. I think we have a  
5 really clear picture of where you have been and where  
6 you are going. It sounds like an exciting time ahead  
7 on the LTR.

8 I guess let's start right here at this  
9 point. What's the path forward that we could be  
10 helpful on? You know, when I think about our working  
11 group meetings, for example, as you were talking, I  
12 was thinking about from my own experience.

13 Are there any sites out there that have  
14 been terminated in one way or another, not maybe under  
15 the current LTR but other licensees that have  
16 terminated activities that could be case studies now,  
17 you know, some of the older history sites, not only  
18 those licensed by the NRC or perhaps an agreement  
19 state? I think there is probably a number of maybe  
20 smaller licensees that have done those kind of  
21 terminations. I just wonder if we could mine some  
22 information there.

23 The second group I thought about -- and I  
24 am just throwing out these ideas just as we're talking  
25 here -- is the FUSRAP sites.

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1 MR. JOHNSON: Okay.

2 CHAIRMAN RYAN: You mentioned a couple  
3 uranium thorium sites. So I thought immediately of  
4 the FUSRAP sites as uranium-thorium-radium, you know,  
5 type sites.

6 I think of the upstate New York area, for  
7 example. And St. Louis has a cluster of them around  
8 there. And they have been evaluated and addressed in  
9 terms of not exactly license termination but the same  
10 kind of finality sort of concept of being finished  
11 with them and so forth. So that is something to think  
12 about.

13 And, again, most of those wastes were  
14 disposed and taken to Envirocare, but some was left  
15 behind. It led me to think about, well, somewhere  
16 along the line, there is a little bit of an overlap or  
17 at least the LTR bumps up against decommissioning.  
18 Where is that line, something to think about? You  
19 know, if you had to take all the waste and remove it,  
20 like the slag pile, you've decommissioned it.

21 MR. JOHNSON: Yes.

22 CHAIRMAN RYAN: So you're then in the  
23 space of looking at that MARSSIM approach to saying  
24 the residuals are okay, but if you leave something  
25 behind, where do you stop thinking about MARSSIM and

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1 start thinking about LTR?

2 MR. JOHNSON: Okay.

3 CHAIRMAN RYAN: You know, it's kind of a  
4 continuum, maybe not exactly, but it's just something  
5 that I thought about.

6 So I guess with those couple of additional  
7 ideas, it would be interesting to think about a  
8 working group meeting, perhaps a day or something of  
9 that order, where we could ask others to come in to  
10 help us all.

11 And the folks I'm thinking about are folks  
12 from perhaps those programs, the Corps of Engineers  
13 and the FUSRAP side, other licensees who have  
14 terminated activities in one form or fashion.

15 I can't think of the name of it, but there  
16 was a thorium site in Chicago.

17 MR. JOHNSON: I don't know.

18 CHAIRMAN RYAN: Was it Kerr McGee  
19 activity?

20 MR. JOHNSON: Anybody?

21 CHAIRMAN RYAN: West Chicago, the West  
22 Chicago site.

23 MR. JOHNSON: West Chicago?

24 CHAIRMAN RYAN: And so, you know, again,  
25 I'm just thinking off the top of my head here. I

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1 think there are maybe some other examples. And I  
2 would just suggest that if we could bring in some of  
3 those experiences, the real life experiences, that  
4 might help inform us all a bit from a broad spectrum  
5 of perspectives, touching on the issues that you  
6 raised there and maybe getting their reaction and  
7 asking them what works or doesn't work.

8 Looking ahead, I think about some of the  
9 details that I know Chris and Mark wrestle with are  
10 what do I do with an engineered barrier and how do I  
11 credit it or discredit it, what is the right way to do  
12 all of that?

13 So some of the details of how the staff is  
14 going to assess a particular licensee's submittal and,  
15 you know, what's the range of failure rate of caps,  
16 for example, things of that sort that seem reasonable  
17 and can be defended from the staff's point of view.

18 Let me just call it the technology of the  
19 risk assessment or risk informing the assessment might  
20 be an area where we could bring in some other folks  
21 who have done a lot of that. I know Jim Clarke, one  
22 of our consultants, has been very active in that area.  
23 EPA probably has some folks or some practitioners who  
24 have served on EPA sites that could give us some  
25 insights there.

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1           And, again, my reach is to try and say who  
2           are the practitioners that have done good solid  
3           credible work in real circumstances that we can draw  
4           from?

5           Does that sound like at least a concept of  
6           how to organize a day or so of a working group  
7           meeting?

8           MR. JOHNSON:   That sounds like a good  
9           suggestion, lessons learned from other similar sites  
10          that pertain to our current cases.

11          CHAIRMAN RYAN:  Now, what the exact topics  
12          are that you want to --

13          MR. JOHNSON:  Right.

14          CHAIRMAN RYAN:  -- prioritize as the  
15          things we really need to know the most about, the  
16          things we know the least about now.  You know, we  
17          could certainly work on that agenda.

18          MR. JOHNSON:  Yes, yes.

19          CHAIRMAN RYAN:  But that is just what I  
20          was thinking about.

21          MR. JOHNSON:  Another example of a  
22          reaction is Ohio in the Cambridge site.  In talking  
23          with the project manager a couple of weeks ago, they  
24          indicated Ohio is proceeding.  You know, they have  
25          just closed their first disposal cell and capped it.

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1 And they will be working on a second one.

2 So I think lessons learned again. We've  
3 got parallel processes, how they analyzed it, again,  
4 under the LTR as an agreement state. So I think the  
5 idea of looking for case studies, lessons that help us  
6 with our issues at our sites.

7 CHAIRMAN RYAN: I think also of Sheffield  
8 and Beatty. Those are low-level waste sites that have  
9 been closed and capped and finalized. I don't know if  
10 that is too big or too complicated a situation, but  
11 how they have done that, what their monitoring issues  
12 are. There may be some fruitful thinking there.

13 West Valley, of course, you have  
14 mentioned. And there are some closed commercial  
15 disposal cells at that location.

16 DR. CLARKE: Mike, as Robert mentioned, a  
17 lot of this has come out of their experience with mill  
18 tailings sites and the way that program has been set  
19 up. I think it would be good to maybe even kick it  
20 off with that program. They have been doing annual  
21 inspections and surveillance monitoring to offer ten  
22 years or more at some of the sites. They probably  
23 have the best database of anybody's.

24 CHAIRMAN RYAN: And you certainly have  
25 some insight into the EPA side of performance

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1 assessment in terms of what is working over time and  
2 what needs attention. So yes, we are interested. I  
3 think we can help put together something that would be  
4 of benefit to you and us.

5 MR. JOHNSON: Okay.

6 CHAIRMAN RYAN: Jim, let me start with  
7 you. Any comments or questions or --

8 DR. CLARKE: I had a couple of questions,  
9 Robert. Following up on my own question earlier that  
10 I think Mike alluded to, one of the challenges if you  
11 have an engineered containment system that has to last  
12 a long time, one of the challenges is going to be to  
13 estimate up front what it is going to cost to maintain  
14 that system.

15 I wondered if there is a plan to give the  
16 licensees any help with that. I mean, do you include  
17 replacement costs, your exceptional maintenance costs?  
18 How do you get your arms around that considering that  
19 if you set up a trust, it is just not going to cover  
20 the costs you might really encounter down the road?

21 MR. JOHNSON: We've talked generally about  
22 that in our meeting with Shieldalloy on this guidance  
23 and recognize that it's a trade-off. How robust your  
24 design of your engineered system is can maybe minimize  
25 the reliance on maintenance. That was the concept

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1 presented earlier. When you diminish how robust the  
2 barrier is, that may require more reliance on  
3 maintenance and repair, replacement, whatever, and,  
4 therefore, the cost increase.

5 And so I think they understood that there  
6 is a trade-off here and they have to make decisions  
7 about how to design their facility for performance as  
8 well as looking at the maintenance cost over the long  
9 term and any repair if they feel that replacement of  
10 parts of the cap, you know, would be something that is  
11 expected or not.

12 That is why we sort of have favored. And  
13 we will see how it plays out, you know. We have  
14 favored this robust approach, like the mill tailings,  
15 at least for the erosion control cover, because there  
16 isn't a need for reliance on active ongoing  
17 maintenance and repair. And so that simplifies the  
18 picture. You know, maybe it is an oversimplification.

19 DR. CLARKE: There isn't yet.

20 MR. JOHNSON: We'll see. So I guess  
21 personally I just feel like pushing on that concept  
22 and its application to other cases. It may work in  
23 some cases. It may not.

24 If erosion is really an issue at this site  
25 to maintain that cover, if that is really important,

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1 then they should follow our guidance. If there is  
2 some other issue, well, then it is a different  
3 question.

4 DR. CLARKE: Well, the five-year renewal,  
5 does that give an opportunity to revise your thinking?

6 MR. JOHNSON: The five-year renewal?

7 DR. CLARKE: As you gain experience with  
8 the performance of the system as time goes on.

9 MR. JOHNSON: I think the five-year  
10 renewal should look at, as I guess we said, the  
11 effectiveness of the whole system, the controls,  
12 institutional controls, as well as the engineered  
13 controls. And any weaknesses that are identified that  
14 hadn't been dealt with before are going to have to be  
15 dealt with.

16 DR. CLARKE: You have an opportunity to do  
17 that.

18 MR. JOHNSON: Right. And so I think that  
19 will help with that, any unanticipated things that  
20 happen, but part of their job I think is to analyze  
21 what could happen at this site under the conditions at  
22 the site.

23 DR. CLARKE: Yes. I just wondered if you  
24 planned on giving them any analytical tools to help  
25 them do that.

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1 MR. JOHNSON: No. We don't have any plans  
2 for giving them analytical tools. I think the first  
3 thing, -- and maybe others in the audience might  
4 comment -- the tools we talked about are just using  
5 their sensitivity analyses and try different bare  
6 components and which ones are important. And then  
7 maybe you might change your reliance on those  
8 components in your analysis.

9 For instance, if a particular barrier  
10 fails by 10 percent or 50 percent or 70 percent, what  
11 does it mean to the overall performance of the system?

12 I think Shieldalloy certain recognizes  
13 that this is sort of why. There aren't any cookbook  
14 answers out there that I am aware of anyhow. And so  
15 they're kind of wrestling with this right now, too.  
16 And their DP when they resubmit it will give us some  
17 ideas of how they have tried to think about it and  
18 approach it and what tools they have tried.

19 DR. CLARKE: Just one more.

20 CHAIRMAN RYAN: Sure.

21 DR. CLARKE: I'm trying to check my  
22 understanding of your graded approach to institutional  
23 controls. If you're in the higher risk category and  
24 there's a requirement for durable controls, is there  
25 any way to meet durable controls other than having

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1 federal ownership and control or state ownership and  
2 control?

3 MR. JOHNSON: I wish I had my table in  
4 front of me. I don't. I believe those were the  
5 principal mechanisms because of the longevity and  
6 because of the -- that is very consistent with the  
7 mill tailings approach.

8 Like I said, we have learned. We have  
9 been kind of copying off them, you know, using things  
10 that are consistent with that regulatory approach,  
11 which was to rely on state or federal -- it turns out  
12 federal DOE, but, I mean, the states have an  
13 opportunity to step up. So we have tried to stay  
14 consistent with --

15 DR. CLARKE: For example, you have layered  
16 or redundant controls in both definitions. And if  
17 you're in the durable category that's layered, it  
18 includes state government control.

19 MR. JOHNSON: Right.

20 DR. CLARKE: And then the others all look  
21 to me to put you in the federal ownership and control  
22 category through an LTC or something like that.

23 MR. JOHNSON: I guess my view would be  
24 that state and federal, it could be either, I mean,  
25 just like UMTRCA if you can work out an arrangement

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1 where that might be agreeable and there is a  
2 commitment by a state to do that kind of a role.

3 DR. CLARKE: Thanks.

4 CHAIRMAN RYAN: Sure. Ruth?

5 MEMBER WEINER: I'm a little concerned  
6 about your rules for unrestricted use areas. You said  
7 they can't be sold off piece-wise, keeping them  
8 together makes a site more valuable. Isn't this  
9 working against future sales? It seems to me you have  
10 so many restrictions on unrestricted use that it would  
11 be tough to find a buyer.

12 MR. JOHNSON: There's really only one  
13 restriction, I think. And that restriction is you get  
14 prior approval from NRC and you don't divide up the  
15 site. Otherwise, you can use it for whatever purpose  
16 you want.

17 MEMBER WEINER: Yes, but those two  
18 restrictions along I don't know whether you have any  
19 sense of how long it would take to get approval from  
20 NRC and keeping the large area together, not selling  
21 it off piece-wise. Then you have to look for a buyer  
22 who wants a large area.

23 MR. JOHNSON: Okay. That's true.

24 MEMBER WEINER: So are you, in effect,  
25 creating legacy sites?

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1 MR. JOHNSON: I guess the approach that we  
2 took was to prevent the small isolated eight-acre  
3 piece of property that has no use or future use other  
4 than because of the restrictions. And who will buy  
5 that?

6 MEMBER WEINER: Well, I thought you were  
7 referring to areas that were released for unrestricted  
8 use.

9 MR. JOHNSON: Yes, but if you do allow  
10 sale of those portions of the property, all or parts  
11 of it, eventually you might get down to only the eight  
12 acres. And in attracting a buyer for that, single  
13 eight-acre with all the restrictions and things they  
14 have to do may be more difficult than keeping the site  
15 together.

16 CHAIRMAN RYAN: Ruth, let me offer you an  
17 alternative view. I think I would take exactly the  
18 opposite view for the reason that certainty about what  
19 is expected; that is, this has got a license on it and  
20 I am going to be the licensee, and there is a path  
21 forward, would probably make me more interested in it,  
22 say, from an industrial use, brownfield kind of  
23 circumstance than the uncertainty of the licensee who  
24 is trying to sell it, saying, "Well, I'm not sure what  
25 the rules are, but we'll figure it out as we go

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1 along."

2 So I think that while it's not an ideal,  
3 perhaps pristine site with nothing, no baggage,  
4 attached, it's a whole lot better if its path forward  
5 is determined through something like this and there is  
6 a clear regulatory path and not.

7 Now, is there a risk or is there something  
8 there to think about? Well, sure, there is, but at  
9 least you've got as a buyer an understanding that  
10 there has been some pedigree flushed out on what  
11 exactly that shapes up to be.

12 So I see it just the opposite. I see it  
13 as a positive to a potential buyer in an industrial  
14 circumstance, rather than a negative.

15 MEMBER WEINER: Maybe so. I just had one  
16 other question and a suggestion. You can probably  
17 figure that you're going to get a request for a  
18 backyard farmer scenario almost every time, either  
19 from the stakeholders or from the state or both. So  
20 you might just consider making that part a routine  
21 part of the analysis.

22 MR. JOHNSON: I see.

23 MEMBER WEINER: It's just a suggestion.  
24 That way you've answered that question up front. The  
25 question I have is, have you had any interaction or

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1 impact on the DOE decommissioning sites? Because they  
2 have to go through a very similar process.

3 MR. JOHNSON: I can't say that we have had  
4 any impact so far. I mean, you may be aware of --

5 MEMBER WEINER: Do you interact with them?

6 MR. JOHNSON: We have started interactions  
7 with them. And we in September signed an interagency  
8 agreement to assist DOE in their cleanup program,  
9 their risk-based in-states program.

10 There are a number of tasks in that  
11 agreement. And they include a lot of things that we  
12 do and they do in common. A lot of the common issues,  
13 long-term stewardship and modeling and scenario  
14 development, are all issues that are identified for us  
15 to work with DOE on at their request.

16 And we started this work by attending a  
17 recent meeting in Chicago to kind of get a sense for  
18 all the stakeholders' concerns with DOE's approach to  
19 risk-based in-state cleanup. So our plans are to work  
20 with DOE over the next few years and talk about how we  
21 do things, talk about what guidance we have in these  
22 areas that might have common issues, and do reviews at  
23 the request of whatever they ask us to review.

24 So what I think is good about it is it is  
25 beginning to exchange information on issues we have in

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1 common. And not only they can see how we're  
2 approaching things, we can see how they're approaching  
3 things.

4 And sharing that information may have an  
5 influence, may have an impact. We'll see. I think  
6 there is a lot of potential for it in the future, but  
7 it's not altogether clear exactly what we are going to  
8 be doing in the next few years. But I think it's a  
9 good start. And then we have interest in working  
10 together.

11 MEMBER WEINER: Thank you.

12 CHAIRMAN RYAN: Allen?

13 MEMBER CROFF: Yes. A couple of  
14 questions. I would like to start with this Fansteel  
15 example. Was the risk from that site without  
16 institutional controls analyzed?

17 MR. JOHNSON: Yes. The site is not  
18 proposing restricted release. It's proposing  
19 unrestricted release. So there are no institutional  
20 controls assumed or proposed.

21 MEMBER CROFF: Okay. But it's proposed  
22 for industrial use?

23 MR. JOHNSON: That's right.

24 MEMBER CROFF: Were risks from residential  
25 scenarios or other things analyzed there?

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1 MR. JOHNSON: I can't answer that, but,  
2 Jim, can you or Mark?

3 MR. THAGGARD: Yes, I can answer that.

4 CHAIRMAN RYAN: Yes. Mark?

5 MR. THAGGARD: We did look at the resident  
6 farmer scenario, kind of bound what the doses could  
7 be.

8 MEMBER CROFF: And what did that number  
9 come out to be?

10 MR. THAGGARD: I believe it was right  
11 around 100 millirem.

12 MEMBER CROFF: Okay. And to continue down  
13 that path, it is supposed to be an industrial use  
14 scenario. What kind of mechanisms are put in place to  
15 make sure it stays industrial use?

16 MR. JOHNSON: Mark?

17 MR. THAGGARD: Well, the thinking is if  
18 it's release for unrestricted use, there would be no  
19 mechanism. I mean, that is part of the risk that you  
20 take in terms of trying to do the analysis, that you  
21 have to try to take a best estimate on what you think  
22 the land use scenario is going to be.

23 And that is one of the reasons that we  
24 bounded the analysis to try to figure out in the worst  
25 case if it reverted to something other than industrial

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1 what the doses could be.

2 But any time you use a realistic scenario,  
3 you would have maybe some small probability that some  
4 other land use scenario could occur at the site. And  
5 that is part of the risk that you're taking.

6 MEMBER CROFF: Okay. But I am assuming  
7 there are like zoning regulations or something there  
8 at this point.

9 MR. McKENNEY: Well, in this case, of  
10 course, -- this is Chris McKenney from NRC -- we have  
11 the discussions with the Port of Muskeokee for the fact  
12 that they are going to buy a portion of the property,  
13 the fact that all of the area around it is pretty much  
14 industrial except for on the other side of the river  
15 so that there is a lot buying into the fact that the  
16 likelihood of it being industrial is very high.

17 From a risk standpoint, your probability  
18 of having a resident farmer or resident of any type is  
19 relatively low. So going into making a risk  
20 management decision and saying, "Well, I know what the  
21 worst case scenario is. I know what the likely  
22 scenario for a single dose is," then you can do some  
23 relative weighting in risk management space to say,  
24 "Will the public be protected?"

25 For the fact that the high risk, the

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1 unlikely scenario is still under 100 millirem or right  
2 about 100 millirem, that is still within the dose  
3 limit of the public dose limit overall.

4 MEMBER CROFF: I understand. I mean, in  
5 many of these areas, there is sort of no perfect  
6 answer.

7 MR. MCKENNEY: Right.

8 MEMBER CROFF: I mean, it's a balance.  
9 But I wanted to understand how it worked at a site  
10 like this.

11 A second question. This concerns the  
12 five-year inspections. I have no right to expect you  
13 to know the answer to this. Let me preface it. The  
14 NRC is sort of signing up for five-year inspections  
15 into the future of some of these sites. And so are  
16 people who watch over RCRA sites, FUSRAP sites, and  
17 the uranium mill tailings, and DOE sites.

18 Is there any idea of how many of these  
19 things the country, if you will, the nation is signing  
20 up for? And they seem to be sort of scattered all  
21 over, I mean, organizationally scattered in many  
22 places, the responsibility for these, including  
23 states, of course.

24 MR. JOHNSON: I can't answer for the other  
25 folks in the country. I can only say that we have 20

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1 some odd mill tailing sites currently under DOE  
2 stewardship. And there are probably maybe 20 more  
3 Title II sites or so. And then literally right now we  
4 have two sites and then West Valley.

5 So, I mean, we don't have many current  
6 sites that we're aware of that are going to need this  
7 other than those two or three. Of course, DOE may  
8 have over 100 or so depending on how that sorts out.

9 But I'm not aware of the numbers in the  
10 other programs to be able to answer your question.

11 MEMBER CROFF: Okay. Thanks.

12 CHAIRMAN RYAN: Just to help Allen a bit,  
13 I think, too, that a number of the sites where there  
14 is activity or action, it is really the licensees that  
15 are decommissioning, rather than terminating under the  
16 termination rule, leaving materials behind and need  
17 the assessment.

18 Particularly in the agreement state level,  
19 I would say there are a lot more folks that are trying  
20 to just completely decommission a site and clean  
21 everything up to the MARSSIM-type approach than leave  
22 something behind. So there is a much bigger number  
23 there, I would say.

24 MR. JOHNSON: When we did the LTR  
25 analysis, we did ask the agreement states if they were

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1 aware of any plans for restricted use across all of  
2 their sites in their states. The only answer was Ohio  
3 and this Shieldalloy Cambridge site. There were no  
4 other sites that they were able to identify at that  
5 time. That was maybe a year and a half ago.

6 So from the standpoint of agreement  
7 states, our agreement states implement the LTR. There  
8 was really only one site at that time that was  
9 planning restricted use.

10 CHAIRMAN RYAN: A couple of questions that  
11 struck me as I was listening to the discussion. On  
12 the financial assurance requirements, I am always  
13 reminded that sometimes people think things aren't  
14 going to be as expensive as they turn out to be in  
15 this arena. So, again, that's where I think getting  
16 some of the actual expenses might be of great benefit.

17 The other is you mentioned earlier in your  
18 presentation, Robert, about sites that half short  
19 half-life material or shorter half-life material  
20 versus sites that have source material that are  
21 essentially unchanged from now on out into the future.

22 Is there a way to connect the two?  
23 Because if a site, for example, had some of both, I  
24 could see two things happening over time. One is that  
25 there would be a much higher need for, say, control

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1 and monitoring early on and then as time went on, some  
2 kind of a decrease in monitoring and/or controls.  
3 Perhaps it could go down based on the radioactivity  
4 quantities that remain over time. So that you change  
5 one, the financial insurance requirements, the  
6 monitoring requirements, the oversight requirements,  
7 and so on, as that degrades down.

8 So I just think that I would think about  
9 -- that may be a rare case. I don't know. But, you  
10 know, you might want to think about either during that  
11 five-year inspection process or the materials that  
12 have been left behind, that you allow for a systematic  
13 reevaluation and decrease in control if that's  
14 appropriate based on risk or updated dose calculations  
15 or changes in use scenarios and so on and so forth.

16 So that might actually help in the  
17 standpoint that you're not making an absolute decision  
18 at an early stage, but, as Jim pointed out, you allow  
19 for that reevaluation.

20 I think that's got two sides to it. One  
21 is it allows for if things aren't going as expected  
22 and they are going in a negative direction, you can  
23 certainly address that through increased controls or  
24 assurances or whatever. But if radioactive material  
25 is decaying or everything is looking just dandy or you

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1 don't need 100 wells but you need 50 or you don't need  
2 10, you need 3, you allow for that to happen over  
3 time.

4 I guess in any monitoring program, too,  
5 it's a point of you take a sample to demonstrate  
6 compliance. You meet some requirement for a  
7 concentration determined in some way or another.

8 But the other part is that if, for  
9 example, you are interested in groundwater, which I  
10 guess east of the Mississippi would be a principal  
11 type of monitoring, how are you going to figure out  
12 how the environment is behaving? Is there a way to  
13 not necessarily make a requirement for measure the  
14 water level, too, instead of just getting the sample  
15 so that you can build your information with a simple  
16 addition or two from a system point of view? How is  
17 the system behaving?

18 The next step in that is if you learn more  
19 about the system, you can then do a little bit more of  
20 a -- I don't want to say a PRA because I don't mean a  
21 full-blown probabilistic risk analysis, but you can  
22 better risk-inform the kinds of calculations that Mark  
23 and Chris and others have talked about to really as  
24 time goes on feel more comfortable that yes, we have  
25 -- I know "bounding" isn't exactly the right word --

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1 we have properly assessed the risks.

2 Does that make sense?

3 MR. McKENNEY: Well, the only concern  
4 would be that it would defeat the number one purpose  
5 of almost all of these, which is finality. Most  
6 anything that has the potential that you would be  
7 changing controls, changing the agreements on  
8 financial requirements, or monitoring periods that  
9 aren't up front agreed to at the point of license  
10 termination, consistent with the fact that the LTC  
11 doesn't involve actual termination, that that would  
12 not be finality because you would always be opening  
13 the door that the standards could change, all of a  
14 sudden some other stakeholder could come in at some  
15 point down the road if you are constantly opening the  
16 door at every five-year review to better sharpen the  
17 pencil. And so I think that there would be a lot of  
18 reluctance on just that would be a -- I mean,  
19 obviously there could be benefits from being able to  
20 do that, but that would be a con that would be  
21 mentioned.

22 I mean, one of the biggest concerns always  
23 has been the reason that we have the issues with EPA  
24 and us is that licensees think that it would be done  
25 with cleanup of a site. And then EPA will make them

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1 clean up five years from now yet again because there  
2 is no finality.

3 And so when we are trying to set up these  
4 options, we are trying to look to see, balance  
5 everything to the point that maybe it is not the best  
6 approach, but finality is such a big key, important  
7 part of the license termination rule.

8 CHAIRMAN RYAN: Yes, I understand the  
9 balance point. I mean, it's a good case when you are  
10 decreasing in radioactivity now. That's easy.  
11 Everybody would like that.

12 MR. MCKENNEY: But we would also have the  
13 potential problem of the other site, which is that it  
14 is always nice to be able to say that we could reduce  
15 potentially the financial assurance requirements or  
16 something, but then there is always the chance that  
17 what would happen if we had to increase?

18 CHAIRMAN RYAN: Well, that is the tough  
19 question.

20 MR. MCKENNEY: See, the corporation would  
21 be like they will be fine with you saying that we will  
22 decrease the requirements in the future, but they  
23 never want one that would shift to possibly --

24 CHAIRMAN RYAN: Well, maybe the strategy  
25 is you set it at that level that satisfies the

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1 long-term risk and the short-term risk and you don't  
2 have an option to go up, you only have the option to  
3 go down or stay the same. I mean, you could think  
4 about it that way.

5 I guess I just think that a little bit  
6 more of in-depth thinking about that financial risk  
7 model and matching it up to the hazard over function  
8 of time might be of value.

9 MR. JOHNSON: Well, I'll react a little  
10 bit differently maybe.

11 CHAIRMAN RYAN: Sure.

12 MR. JOHNSON: Finality is important as far  
13 as -- and I think the requirement of not requiring  
14 more cleanup unless there is a safety, clearly  
15 significant threat is important. But there is no  
16 reason to follow up on your example of a mixed site,  
17 a hypothetical mixed site with short-lived and  
18 long-lived.

19 I mean, you know you have that already in  
20 your planning stage. And so your DP could very well  
21 -- in taking the tailored approach or the  
22 risk-informed, tailored approach to controls, you  
23 would recognize up front in your plans for monitoring  
24 and maintenance that you have got maybe two types of  
25 contamination.

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1           And so maybe the controls on the  
2 short-lived would only last for 40 years. And so your  
3 amount of oversight or your amount of monitoring and  
4 maintenance, you may predict that it will diminish  
5 because one thing you do know is things do decay and  
6 you can calculate the decay.

7           And so I think in the tailored approach,  
8 you might be able to pull something like that off, but  
9 you would plan it up front. And I think my reaction  
10 is the five-year reviews, if there is something that  
11 is happening, there will have to be mitigation to deal  
12 with it if there is a significant threat.

13           CHAIRMAN RYAN: Yes. I know. And I  
14 understand there are specific thresholds that you are  
15 developing to address significant health risk  
16 questions and so forth, but the fact of the matter is  
17 that you have got an opportunity to improve your  
18 knowledge of is this working.

19           MR. JOHNSON: Right.

20           CHAIRMAN RYAN: And I think that is  
21 something to -- again, maybe I haven't hit on a  
22 perfect example, but if you could build that into the  
23 process, that is going to build confidence over the  
24 long haul for everybody.

25           MR. JOHNSON: And the cost projections

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1 that are maybe difficult, I think we realize that.  
2 And that is why we are asking for stakeholder input on  
3 them, too, you know, up front.

4 CHAIRMAN RYAN: And, again, to get back to  
5 our discussion of potential ACNW working group  
6 meetings, if we could grasp in the people that have  
7 wrestled with that, either on the RCRA side or the  
8 CERCLA side, or folks that have done the radioactive  
9 material side of it, that would be I think a great  
10 benefit to try and pull that knowledge together.

11 Yes, please, Jim?

12 DR. CLARKE: One thing. I think it we  
13 could work over shorter time horizons, a lot of this  
14 would go away. But the problem is the system has to  
15 last hundreds of years or thousands of years and our  
16 experience with these systems is maybe 10-20 years at  
17 the most. So we are way beyond our experience in our  
18 design and our planning.

19 I think to take this opportunity to  
20 respond to Allen's question, there are over 1,000  
21 CERCLA sites. Any CERCLA site that requires  
22 institutional controls triggers five-year reviews. So  
23 we are going to have several hundred probably of those  
24 sites being reviewed every five years, but eventually  
25 we will start to get some experience with these

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1 systems and how they perform and how they degrade and  
2 what planning horizons are appropriate. But right now  
3 we're in the challenge as to up front estimate that,  
4 get it right, and go forward because Chris makes a  
5 very good point with finality.

6 CHAIRMAN RYAN: Yes.

7 DR. CLARKE: People do want finality.

8 MR. JOHNSON: I might just ask one more  
9 thing. If you think about the proposals to review our  
10 guidance and the other things and let us know so our  
11 planning can incorporate it in a timely way and --

12 CHAIRMAN RYAN: Absolutely. And I think  
13 what we were trying to do is organize any  
14 information-gathering that would be helpful to you and  
15 us and the review of your drafts in a way that made  
16 that connection flow well. So I think we are wide  
17 open to working on how that best comes together to  
18 help everybody out in a timely way.

19 MR. JOHNSON: Or to review it in general  
20 or focus on particular parts of it that you know is  
21 sort of what your preference is.

22 CHAIRMAN RYAN: And, in fact, what really  
23 is areas where you feel you would like to gather  
24 information as well. Absolutely.

25 MR. JOHNSON: Okay.

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1                   CHAIRMAN RYAN:    Sounds great.    Well,  
2                   thanks very much for a -- I'm sorry.   Mike Lee had a  
3                   --

4                   MR. LEE:    Yes.    Just very briefly, a lot  
5                   of reference has been made to performance of barriers  
6                   and how you judge how long these things are going to  
7                   last.    With Mark Thaggard here, he can remind you as  
8                   well that you may want to make reference or look into  
9                   the low-level waste PTP.    There was considerable  
10                  discussion of how you evaluate barrier performance.  
11                  We used, the folks up in Research, in particular, in  
12                  their association with NIST, to look at concrete  
13                  performance.

14                  So there may be some snippets of  
15                  information both in the guidance documents as well as  
16                  response to public comments you may want to look at.  
17                  That also applies to the performance of natural  
18                  barriers, such as earthen mounds.

19                  My recollection is we also made reference  
20                  to a National Academy study which looked at the  
21                  performance of geosynthetics and bitumen covers for  
22                  shallow disposal facilities.    That academy report I  
23                  think is still out there in the literature.    You could  
24                  look at that, just as ideas as you think about  
25                  guidance in this area.

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1 Does our reasonably foreseeable land use  
2 assume preservation of institutional knowledge? Are  
3 you assuming at some point that? Are you going to  
4 deal with that in the guidance? You don't have to  
5 answer now, but is that going to be articulated in  
6 that regard?

7 MR. JOHNSON: Preservation of records for  
8 sites like that, you mean, or --

9 MR. LEE: No. Institutional oversight, I  
10 guess, for lack of a better word.

11 CHAIRMAN RYAN: So the town council knows  
12 what is out there 100 years down the line, that kind  
13 of thing.

14 MR. JOHNSON: No. It was like the  
15 previous answer. No because you're not relying on  
16 institutional controls, which in some definitions  
17 includes records management and all.

18 MR. LEE: Sure. Well, that is just a  
19 segue back into the significance of barrier  
20 performance. And if you refer, as you well know,  
21 Parts 60, 61, and 63 all at some point rely on  
22 isolation to protect the public. So you may want to  
23 make reference to that or at least consider that.

24 My recollection is thorium is geologically  
25 pretty unique. Has thought ever been given just to

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1 try to find a buyer for the thorium? I know that they  
2 mine thorium sands in Australia and places like that.  
3 As part of the --

4 MR. MCKENNEY: Not for thorium. It mines  
5 monozyte sands for titanium.

6 MR. LEE: Okay.

7 CHAIRMAN RYAN: And they mine garnet.  
8 Thorium is always --

9 MR. MCKENNEY: Yes. Thorium happens to be  
10 more like just a waste product out there.

11 MR. LEE: All right. I just thought there  
12 may be a simple way of dealing with it. Thank you.

13 CHAIRMAN RYAN: I'm sure these companies  
14 have looked for buyers for a long time.

15 MR. MCKENNEY: That's right.

16 MR. LEE: Okay.

17 CHAIRMAN RYAN: Any other questions or  
18 comments? Latif, yes, please, sir?

19 DR. HAMDAN: Thanks, Mike.

20 Bob, just one clarification. In your  
21 example of institutional control sites, you had the  
22 concept of having sufficient financial assurance and  
23 trust. But in the same slide, just one bullet down,  
24 you left me with the impression that if there is ever  
25 a bankruptcy, it may not be covered. I mean, the

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1 financial assurance may not cover a site reclamation  
2 in case the licensee goes bankrupt.

3 So the question I have is, is this concept  
4 of sufficient financial assurance sufficient to cover  
5 cases of bankruptcies or not?

6 MR. JOHNSON: It is. And that is one of  
7 the reasons why it is there and it is needed, that if  
8 the owner licensee goes bankrupt, goes away, there is  
9 a source of, an independent source of, funding to  
10 carry on activities. And that is the purpose of that  
11 trust fund. And the challenge is to determine if you  
12 have got the right amount in there.

13 And then the five-year reviews, one of the  
14 reasons for a five-year renewal is to check that  
15 trustee and the sustainability of that trust.

16 DR. HAMDAN: And we know that the  
17 terminate amount is really a challenge because of our  
18 experience with uranium mill tailings sites, right?

19 MR. JOHNSON: Right. Yes, there's history  
20 there I am aware of. Yes, you are right.

21 CHAIRMAN RYAN: One last quick question.  
22 It's a follow-up to Latif's. If you identify a  
23 high-risk operating site, are you going to try and get  
24 them on the financial assurance track early? Have you  
25 thought about any linkage between ultimate financial

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1 assurance and high-risk operating site?

2 MR. JOHNSON: That's a good question. I  
3 will think about it.

4 CHAIRMAN RYAN: It's something to think  
5 about.

6 MR. MCKENNEY: One of the options about  
7 operating plants and decommissioning that is  
8 considered is the fact that we may link the funding  
9 requirements for decommissioning to activities that  
10 are happening at the operating sites.

11 So if spills were to occur, they may have  
12 to either immediately clean them up or take a hit on  
13 their decommissioning funding right then. They would  
14 have to increase their decommissioning funding for  
15 potential cleanup later in the future.

16 MR. JOHNSON: And that's true --

17 MR. MCKENNEY: And those are the things  
18 that we will have to look through in the rule to see  
19 how we can implement those sorts of things.

20 MR. JOHNSON: And Chris is right. One of  
21 the subissues in financial assurance space was  
22 indicators of higher cost of cleanup, but I think your  
23 question may be even different. It's like it's not  
24 indicators in that things have happened that you're  
25 going to have to pay more for, but it's like the

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1 potential for things to happen.

2 MR. MCKENNEY: There might be different  
3 levels of decommissioning funding for different  
4 classes of facilities maybe.

5 MR. JOHNSON: Yes.

6 MR. MCKENNEY: There may be --

7 CHAIRMAN RYAN: If you take, for example,  
8 highly mobile liquid forms, long-lived material, I  
9 mean, those are all the risk indicators in the right  
10 circumstances, but I just wondered if you guys had  
11 thought about the linkage between a high-risk  
12 operating site and the financial assurances that may,  
13 in fact, come along later.

14 MR. MCKENNEY: That may be a very good  
15 option to look at.

16 MR. JOHNSON: Yes. We'll write that down  
17 and put it into our considerations.

18 CHAIRMAN RYAN: And, again, it is not that  
19 I would want to foist extra costs on folks, but if  
20 they are heading toward a substantial accumulation of  
21 costs, it is better to get that up front and plan for  
22 it than it is to have it hit you all of a sudden, I  
23 think.

24 MR. JOHNSON: I think our emphasis  
25 initially was for those sites and activities that we

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1 think might be a high potential. Then you want to  
2 have procedures put in place, if they aren't already,  
3 to monitor and to report and to watch it more  
4 carefully so it doesn't happen.

5 CHAIRMAN RYAN: Right.

6 MR. JOHNSON: But we should think about  
7 your suggestion as well.

8 CHAIRMAN RYAN: Okay. Well, thank you.  
9 Any other questions or comments?

10 (No response.)

11 CHAIRMAN RYAN: Thank you all very much.  
12 We are adjourned until 1:00 o'clock. Thank you very  
13 much.

14 (Whereupon, at 11:42 p.m., the foregoing  
15 matter was recessed for lunch, to  
16 reconvene at 1:00 p.m. the same day.)

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

2 (1:03 p.m.)

3 CHAIRMAN RYAN: Okay. Our afternoon  
4 agenda calls for two items. One is a consolidated  
5 issue resolution status report. Second after that  
6 will be a review and discussion of the ACNW 2005  
7 action plan. And that will conclude our afternoon  
8 activities.

9 If Neil Coleman comes in, we might get  
10 started on the igneous activity letter. If not, we  
11 will take that up tomorrow morning. But we may start  
12 that if get here on time to do that.

13 MEMBER CROFF: He's still working on it as  
14 we speak.

15 CHAIRMAN RYAN: He's working on it as we  
16 speak. And he may or may not.

17 Our first speaker up is you.

18 DR. RUBENSTONE: Okay. Thanks.

19 14) CONSOLIDATED ISSUE RESOLUTION STATUS REPORT

20 DR. RUBENSTONE: I am Jim Rubenstone. I  
21 am part of the High-Level Waste Repository Safety  
22 Division here at NRC. And I am going to be speaking  
23 to you today about the integrated issue resolution  
24 status report.

25 Just as an introduction, this is an

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1 updated report that was issued in 2002 for the first  
2 time. And we are currently updating it. The report  
3 is not quite finalized yet. We expect that it will be  
4 done within the next few weeks, and we will be sending  
5 it to DOE, the stakeholders. And that includes ACNW  
6 will be getting a copy of the report as well.

7 This report has contributions from almost  
8 all of the technical staff in the Division of  
9 High-Level Waste Repository Safety and at the center.  
10 So I would like to acknowledge all of those  
11 contributions and not name them individually.

12 What I will be giving you today is an  
13 overview of the report, what it is, a brief history,  
14 the role it is going to play in our review of a  
15 potential license application for Yucca Mountain, and  
16 some examples of what topics are included in it.

17 The purpose is fairly straightforward.  
18 The IIRSR gives a status of prelicensing interactions  
19 between the Department of Energy and the NRC on Yucca  
20 Mountain. These are predominantly technical  
21 interactions. So this is a technical information  
22 report.

23 It's a fairly large document. It's going  
24 to be probably in excess of 800 pages when it's done  
25 plus appendices. So it summarizes where we stand on

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1 interactions.

2           Next slide, please. Just to run down how  
3 this came about, the key technical issues were first  
4 identified by DOE and NRC in 1996. In the following  
5 year, the NRC began issuing status reports for  
6 individual issues. And as that process matured over  
7 the next few years, it became clear that these issues  
8 were interdependent and that they could be better  
9 served by having an integrated report that tied all of  
10 them together.

11           So the first IIRSR, as I said, was  
12 published in 2002 as part of a NUREG series. It  
13 covered both preclosure and postclosure topics,  
14 although at the time most of the interactions had been  
15 predominantly on postclosure topics. The current  
16 report is an update of that NUREG report.

17           Next slide, please. The IIRSR is part of  
18 the NRC's tool kit for reviewing the potential  
19 repository license application. And it's the  
20 technical information tool from that kit. It  
21 summarizes information that comes predominantly from  
22 three sources: documents produced by DOE, technical  
23 interactions between the two groups, -- and those are  
24 mostly technical changes, Appendix 7 meetings -- and  
25 independent analyses done by NRC staff and center

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1 staff on these issues.

2 In order to prepare the report, we had to  
3 freeze the information at a point. So this report is  
4 current through March of this year.

5 The structure of the report follows the  
6 review methods that were given in the Yucca Mountain  
7 review plan. And the Yucca Mountain review plan, of  
8 course, derives its structure from the Part 63  
9 requirements. And we have incorporated into the  
10 report the risk information from the risk insights  
11 baseline report that was published or prepared earlier  
12 this year. This risk information helps us inform what  
13 sorts of information is significant for repository  
14 performance and to what level of understanding you  
15 need to develop that information.

16 Next slide, please. It is important to  
17 remember that we are still in prelicensing space. So  
18 the IIRSR is an informational report. It doesn't  
19 reach any decisions. It is not the safety evaluation.  
20 It doesn't speak to regulatory compliance. Those are  
21 things that will be done during the license review.

22 Next slide, please. I am going to go  
23 briefly over some of the areas that are covered in  
24 this report without going into great detail. As I  
25 said, it's a fairly dense and heavy report. I'm not

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1 going to have time to cover everything in detail.

2 There are three broad areas we can break  
3 things up into. The first is the general programmatic  
4 and administrative topics, which is kind of a  
5 catch-all term. And then the real meat of the report  
6 is in the preclosure safety analysis and the  
7 postclosure performance assessment. So for the next  
8 couple of slides, I will give some examples of topics  
9 that are covered in each one of these areas.

10 The first one, as I said, is the catch-all  
11 things, like in general information site description.  
12 And, as I said, the report reflects the information  
13 that was developed during the interactions between DOE  
14 and NRC. So some of these areas, like general  
15 information, we didn't have specific meetings on  
16 general information.

17 So these areas in the report are  
18 necessarily a bit spare; whereas, in other areas,  
19 there has been pretty extensive interaction between  
20 DOE and NRC. For example, quality assurance for the  
21 past couple of years, we have been having quarterly  
22 meetings on that. So that section is much more  
23 detailed.

24 Next one. The preclosure safety analysis,  
25 some of the general areas that we cover should be

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1 familiar: identification of hazards, initiating  
2 events, and event sequences, including the  
3 probabilities of those events occurring and their  
4 consequence analysis.

5 And then the other part of the safety  
6 analysis is the identification of the structures,  
7 systems, and components important to safety and  
8 looking at some detail of the design of those SSCs.  
9 This should be familiar to anyone who has been through  
10 NRC's work on other major engineered facilities. It  
11 follows that sort of pattern. We see the same thing  
12 in the YMRP.

13 Next slide. Following permanent closure,  
14 the way that the system is assessed is through a  
15 performance assessment model. As I said, most of the  
16 interactions between DOE and NRC have been in this  
17 area. And this covers system description; the  
18 multiple barriers requirement, which is in Part 63;  
19 again, a scenario analysis and event probability,  
20 which is part of the risk triplet approach to it.

21 And then the real, the heart and the  
22 longest sections of the report are the 14 model  
23 abstractions of performance assessment. And these are  
24 familiar topics that had been discussed many times,  
25 things like degradation of engineered barriers,

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1 mechanical or disruption of the engineered barriers,  
2 climate and infiltration. And there are 14 topics.  
3 I won't list them all. They're on the first backup  
4 slide if we get to them.

5 Can we just go back for a sec? The other  
6 thing I wanted to say is that the model abstractions  
7 in the IIRSR, each of the 14 is reviewed following the  
8 5 review methods that are outlined in the YMRP. And  
9 those are on the second background slide. They cover  
10 model integration, data and model justification, the  
11 uncertainty in the data, the uncertainty in the model,  
12 and the support for the model. So those are the  
13 areas, again, from the YMRP. As I said, each one of  
14 the model abstractions is reviewed following that  
15 pattern.

16 So now we can go to the next. Just to  
17 summarize what I have said, this is a broad overview.  
18 The IIRSR is an informational document on interactions  
19 between DOE and NRC. The information is current  
20 through March of this year. We will be publishing it  
21 as a revision of NUREG-1762, but as soon as the report  
22 is finalized, we will be providing informational  
23 copies to DOE, the stakeholders, and the committee.  
24 And it's one of our review tools to be used along with  
25 the review plan and the risk insights baseline report

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1 in reviewing a potential license application.

2 And the note is just to remind us that  
3 even though we froze that information in March, we are  
4 continuing to review material submitted by DOE. I  
5 believe they made all of their submittals that they  
6 intend to do this year. And we're providing feedback  
7 to them on these submittals, and we will be until the  
8 potential license application is filed. Our current  
9 schedule calls for having that completed by the end of  
10 this calendar year, that feedback.

11 So that's it. And I'm happy to answer any  
12 questions.

13 CHAIRMAN RYAN: Thank you. I guess the  
14 footnote caught my attention. How are we doing on  
15 resolving KTIs and so forth? We had seen a couple of  
16 charts of that type before, and we talked about a bow  
17 wave, I guess, four or five months ago. How is the  
18 bow wave looking?

19 DR. RUBENSTONE: Everything is in.  
20 Correct me if I'm wrong, but I believe everything that  
21 DOE expected to submit is now in. It didn't follow  
22 the exact schedule. There were always things sliding  
23 around.

24 CHAIRMAN RYAN: Sure.

25 DR. RUBENSTONE: But they are now all

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1 in-house. We are reviewing them. We have been  
2 reviewing them. And last month we sent our response  
3 letter to DOE that stated that we will get feedback to  
4 them on all of these issues.

5 Our focus is going to be putting the  
6 highest priority on those items that have been  
7 identified as having the highest risk significance.  
8 So we're doing those first, but we intend to get  
9 feedback on all of them to DOE before the end of year.

10 CHAIRMAN RYAN: It sounds like the bow  
11 wave went away a bit.

12 DR. RUBENSTONE: Well, the bow wave came  
13 in, and it loshed over us. And we stood up and kept  
14 working. So it's --

15 CHAIRMAN RYAN: That's great. Questions?

16 DR. RUBENSTONE: Anything else?

17 MEMBER WEINER: Yes.

18 CHAIRMAN RYAN: Ruth?

19 MEMBER WEINER: I have just a couple. Is  
20 NRC staff using this PCSA tool that was developed by  
21 the center to identify hazards and so on?

22 DR. RUBENSTONE: At the time this report  
23 was prepared, the PCSA tool was just being wrapped up.  
24 So we're going to be using that, I believe. And I  
25 don't want to get into the details because that is not

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1 my area of specialty. But we have gotten the final  
2 PCSA tool.

3 I believe for this report, the PCSA tool  
4 was not specifically used to develop that because of  
5 the time frame on which we developed it. I think the  
6 PCSA tool was just delivered in its final form in  
7 September, if I'm not mistaken. And much of the  
8 development of this report preceded that. But we do  
9 have that PCSA tool now.

10 MEMBER WEINER: I'd be very interest in  
11 your future assessment of its usefulness and ease of  
12 use, how well it works because I think it is a very  
13 interesting approach to preclosure safety analysis.

14 The other question deals with one of your  
15 backup slides. It's the 14 model abstractions.

16 DR. RUBENSTONE: Right.

17 MEMBER WEINER: You list as one of the  
18 model abstractions volcanic disruption of the waste  
19 package. Does that include chemical interaction  
20 between the magma and anything in the waste packaging  
21 material, the cladding, and so on? Does it include  
22 the chemical interaction?

23 DR. RUBENSTONE: It includes it in the  
24 broad sense, but, as I understand it, DOE is not going  
25 into any details on that and is adopting a

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1 conservative approach, what they are claiming is a  
2 conservative approach.

3 Again, this review is in process. And the  
4 final review will depend on what is in the LA. But my  
5 understanding is that they will be basically stating  
6 that there will be no change in the chemical form of  
7 the spent fuel due to interactions.

8 And, again, that's my understanding as  
9 current of the DOE approach. And that is certainly  
10 subject to their change in how they are doing it.

11 MEMBER WEINER: I would just encourage you  
12 to take a look at that, as I'm sure you will.

13 DR. RUBENSTONE: I agree that it is worth  
14 looking at.

15 MEMBER WEINER: That's it.

16 CHAIRMAN RYAN: Mike?

17 MR. LEE: Yes. As you have noted, the  
18 title of this report is "Issue Resolution Status  
19 Report." And if a member of the public were to pick  
20 up this report and read it, would they get a sense for  
21 the status of issue resolution as it's defined? I  
22 mean, if the Combustion asked the Committee, "What is  
23 the status of issue res.," I mean, if they --

24 DR. RUBENSTONE: Right. One of the  
25 appendices -- and I didn't reproduce it here because

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1 it's 50 pages long -- is a line by line status of each  
2 agreement. So that information is in there.

3 The main body of the report is written  
4 more in a narrative style about the technical  
5 information. So the focus is on the technical  
6 information. It's not a checklist of issues.

7 MR. LEE: Right. But a reader can review  
8 the document and get a sense as to where --

9 DR. RUBENSTONE: I think that information  
10 is --

11 MR. LEE: -- issues may remain open or --

12 DR. RUBENSTONE: Yes. That information is  
13 summarized in the appendix A.

14 MR. LEE: Thank you.

15 CHAIRMAN RYAN: I guess just to follow up,  
16 that is really the \$64,000 question, I guess. You  
17 have said that everything has been submitted and you  
18 plan to review everything by the end of the year. So  
19 if my memory serves me right, all of the previous  
20 graphs of things that are hanging all over the LA time  
21 frame into the next year are things that are  
22 previously planned to do that, but nothing is left  
23 hanging you had planned to do this year. Is that a  
24 fair summary?

25 DR. RUBENSTONE: I'm going to walk

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1 carefully here. What we have said is that we will  
2 provide feedback to the Department of Energy on  
3 everything they have submitted. We are not  
4 specifically going into the open/closed.

5 CHAIRMAN RYAN: Ah. That's the \$64,000  
6 question.

7 DR. RUBENSTONE: Right. And I may want to  
8 defer to management and some of our --

9 CHAIRMAN RYAN: Well, I guess from my  
10 perspective, that's the interesting question. I mean,  
11 this is an interesting update, but the real question  
12 is, what is open and what is closed and what is in  
13 front of us and what is behind us?

14 DR. RUBENSTONE: I mean, getting back to  
15 what Mike said, I think in reading the report, we have  
16 not tried to -- let me put it this way. Areas where  
17 we think DOE has provided information that covers the  
18 issue are identified. And questions that the NRC has  
19 raised are also identified.

20 MR. LEE: I guess what you are saying is  
21 in reading the report, the reader would have to do  
22 some type of analysis, I guess, to kind of walk that  
23 fine line or read between the lines, I should say, to  
24 get those answers.

25 DR. RUBENSTONE: We're not trying to make

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1 it cryptic, but --

2 CHAIRMAN RYAN: You've done that.  
3 Frankly, I don't know where you are.

4 DR. RUBENSTONE: I guess I want to go back  
5 and emphasize that we are not reaching any sort of  
6 finding in this and that this is an information  
7 update. We're not saying that such and such an issue  
8 is now closed and we have decided that it is covered  
9 because that is not the purpose of the report and that  
10 is not the role of NRC in the prelicensing arena.  
11 It's basically to generate information such that the  
12 license application is the best that it can be.

13 MR. STABLEIN: Could I add to that?

14 DR. RUBENSTONE: Yes.

15 MR. STABLEIN: Maybe I could provide a  
16 little more clarity as to where we stand because I  
17 think I know what you are looking for. The fact of  
18 the matter is that all of the agreements will not be  
19 closed at the time of the license application. I am  
20 not sure what the number will be that remains open,  
21 but it will be more than a handful. It will be  
22 substantial.

23 And we put letters in the public record  
24 back to the State of Nevada about the fact that they  
25 don't all have to be closed when DOE comes in with the

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1 license application. What we have said in those  
2 letters is for the ones that are hanging open at that  
3 time, we will review the license application on its  
4 own merits. And that's when we make licensing  
5 determinations.

6 So as far as this document is concerned,  
7 we consider it contains an awful lot of valuable  
8 technical information that will help the staff be  
9 ready to review the license application. It does not  
10 bring closure to all of the 293 agreements that were  
11 crafted with DOE.

12 CHAIRMAN RYAN: Sure. And I appreciate  
13 that clarification. In previous meetings, though, we  
14 have actually seen that chart and understood a little  
15 bit more clearly than we're seeing it today. I'm just  
16 wondering why the change. What is going on?

17 MR. STABLEIN: Well, Jim's presentation  
18 wasn't actually intended to deal with the agreements  
19 themselves and kind of is emphasizing that this  
20 document is more than an attempt to summarize the  
21 agreements.

22 When we crafted the key technical issues  
23 in '96, we forged the nine major issue areas. And  
24 what this document does is provide all of the  
25 technical information that we have gathered together

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1 over the last eight years on those big key technical  
2 issues.

3 And while the individual agreements are  
4 discussed to some extent, this document really goes  
5 above and beyond what we have been running day to day  
6 in our program as our technical teams work on the  
7 individual agreement responses and our reviews of  
8 those and the letters that we're sending back to DOE.

9 If somebody wanted to see the entire  
10 record on the agreement responses, they would need to  
11 take this document and capture the letters we have  
12 been sending back to DOE as a complete body of work on  
13 the agreement responses.

14 If you are interested in the updated chart  
15 on the agreements themselves, I have Dan Rom working  
16 on that. And we can provide that to you probably  
17 before the end of the meeting.

18 CHAIRMAN RYAN: Okay. That would be a  
19 nice adjunct to kind of complete the picture here  
20 because I think you have given us a snapshot of your  
21 report without any of the detail. And that is good,  
22 but in going to the other end of it, if we see that  
23 updated chart, once we read the report, we can see the  
24 beginning and the end. That would be real helpful.

25 DR. RUBENSTONE: Thank you, King.

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1 MR. LEE: One other question.

2 DR. RUBENSTONE: Yes, Mike?

3 MR. LEE: Earlier you made reference to  
4 the license application toolbox or review toolbox or  
5 whatever.

6 DR. RUBENSTONE: Yes.

7 MR. LEE: You have the IIRSR. You have  
8 the risk insights report. You have your PA capability  
9 and insights from that. And you have the Yucca  
10 Mountain review plan. Are there any other tools in  
11 the toolbox that are going to contribute to that  
12 review capability? And if so, what are they? And  
13 when might they be available?

14 DR. RUBENSTONE: I think you have hit the  
15 big ones. I mean, in my mind, certainly the PC  
16 underlies everything for certainly postclosure. So  
17 that is a very broad tool. But the three legs, as I  
18 envision it, are the IIRSR, the Yucca Mountain review  
19 plan, and the risk insights baseline report. Ruth  
20 mentioned the PCSA tool, which is another one with  
21 preclosure.

22 MR. LEE: Sure.

23 DR. RUBENSTONE: There is some more  
24 in-depth risk assessment that is being done currently  
25 to update some of the aspects of the risk insight

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1 report and go into some more detail. If there is  
2 anything else that I am missing? Like I said, those  
3 are the big ones. And then we have a number of other  
4 accessory tools that we're using.

5 MR. LEE: Thank you. Snap-ons.

6 DR. RUBENSTONE: Yes. There you go.

7 CHAIRMAN RYAN: Okay. Any other questions  
8 or comments? Yes?

9 MR. STABLEIN: Could I just add Mitzi  
10 Young from the General Counsel's office, who is here,  
11 reminds me to mention that the chart that we will  
12 provide you today on the agreements will be right up  
13 to date; whereas, as Jim has mentioned, this report  
14 here goes to March '04. So the chart will be more  
15 up-to-date.

16 CHAIRMAN RYAN: That's very helpful. That  
17 way we can get a snapshot of what has happened in the  
18 last number of months and see how that is working.  
19 Great.

20 DR. RUBENSTONE: Mike, that summary table  
21 that I referred to that is in the appendix is actually  
22 intermediate between March and today.

23 CHAIRMAN RYAN: That's okay.

24 DR. RUBENSTONE: And it goes into more  
25 detail, but King will get you the one that is

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1 up-to-date.

2 CHAIRMAN RYAN:

3 That's great. Terrific. Thank you.  
4 Anything else? Going once, going twice.

5 (No response.)

6 CHAIRMAN RYAN: Okay. Thank you very  
7 much. We appreciate it. Okay. Next on our agenda is  
8 our 2005 action plan. We're not taking any new  
9 information. So we can go off the record at this  
10 point. And I think we're concluded on the record  
11 today. Is that correct? Okay. Yes. We're concluded  
12 on the record today. And we'll start back up.

13 Well, actually, John, we're writing  
14 letters tomorrow. So yes, we do need to have the  
15 recorder at about 8:30. Okay. I'm sorry. We're  
16 done. Thank you very much.

17 (Whereupon, at 1:28 p.m., the foregoing  
18 matter was adjourned.)

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